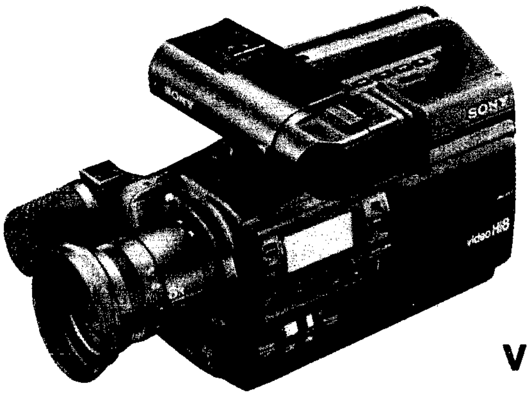
EVO-9100P

SERVICE MANUAL

AEP Model
UK Model



video Hi8 Handycam

U MECHANISM

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour CCIR standards
Usable cassette	8 mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec.
Recording time	SP mode: 1 hour 30 min (E5/P5–90)
Playback time	SP mode: 1 hour 30 min (E5/P5–90)
Fast forward/rewind time	Approx. 7 min. (E5/P5–90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder U.K. : VF-268 Others : VF-267 (black and white)
Lens	Combined 8 × power zoom lens f = 11–88 mm, F1.4 with macro Filter diameter: 52 mm
Auto focus system	TTL
Colour temperature	Auto One push white balance INDOOR 3,200 K OUTDOOR 5,800 K
Minimum illumination	5 lux (F1.4)
Illumination range	5 lux–100,000 lux (0.5–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Automatic, manual (variable)

Input and output connector

Video output	Phono jack, 1 Vp-p, 75 ohms unbalanced, sync negative
S video output	4-pin mini-DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.300 Vp-p, 75 ohms, unbalanced
Audio output	Phono jack, –7.5 dBs, loaded by 47 kilohms, output impedance less than 2.2 kilohms
RFU DC OUT	Special minijack, 5V DC
Earphone jack	Minijack, 8-ohm impedance
Remote jack	Stereo mini-minijack
MIC jack	Minijack, –66 dBs, low impedance With 2.5–3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5 V DC

– continued on next page –

MICROFILM

VIDEO CAMERA RECORDER

SONY®

General

Power requirements	On battery mounting surface 6.0 V (battery pack)/7.5 V (AC power adaptor)/9.0 V (alkaline batteries)
Power consumption	8.3 W (camera recording) including the viewfinder
Installation	Vertically, horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 216 × 180 × 295 mm (w/h/d) ($8^{5}/_{8}$ × $7^{1}/_{8}$ × $11^{5}/_{8}$ in.) Including the lens hood and the viewfinder
Weight	Approx. 1.8 kg (3 lbs 15 oz) including the viewfinder excluding the battery and cassette
Microphone	Electret condenser microphone

Design and specifications are subject to change without notice.

Note

This appliance conformes with EEC Directives 76/889 and 82/499 regarding interference suppression.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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The colour reproduction standard frame is contained after the adjustment elements location of camera adjustment parts.

SERVICE MODE:
In this instrument, service mode is provided in order to know the set status and for the electric adjustment of camera. This operation in made by full remote control (J-6082-053-A).

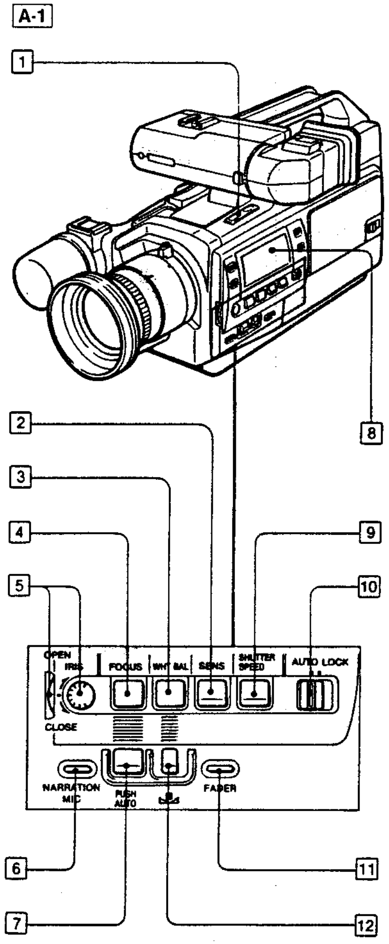
- For adjustment of EVR (Electronic Variable Resister) of camera.
  ... ADJUST MODE → Refer to page 246.
  (8-2-3. Adjustment Remote Control)
- For checking the set status
  ... STATUS INFORMATION MODE (STATUS MODE)
  → Refer to page 303.
  (10. SERVICE MODE)

SECTION 1
GENERAL

This section is extracted from instraction manual.

1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A-1



For details on the use of each control, refer to the pages indicated in the circle.

A-1

1 **EDITSEARCH button ㊵, (52)**

2 **SENS (sensitivity) button (55)**
Press when the scene to be recorded is too dark.

3 **WHT BAL (white balance) button ㊵**
Used for manual white balance adjustment.

4 **FOCUS button (55)**
Used for manual focusing.

5 **IRIS control ㊸**
Normally set to the center position.

6 **NARRATION MIC button ㊿**
Press to use the narration microphone.

7 **PUSH AUTO button (55)**

8 **Display window ⑮**

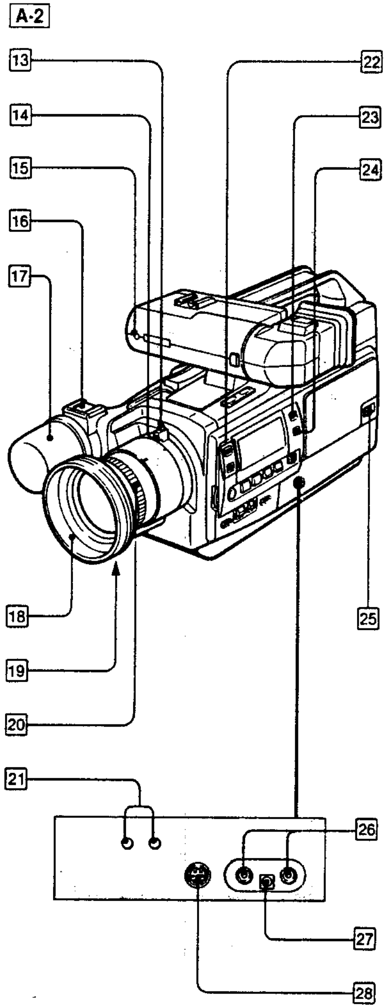
9 **SHUTTER SPEED button ⑱**
Used to select the shutter speed.

10 **AUTO LOCK switch ㉟**
Normally set to the left AUTO LOCK position. To adjust the focus, white balance, iris, sensitivity or shutter speed manually, set to the right position.

11 **FADER button ㉚**

12 **(one push white balance) button (62)**
Press to adjust the white balance presicely.

A-2



A-2

13 **Macro set button (74)**

14 **Zoom lever (72)**

15 **Camera recording/battery/tape end lamp**
Lights during camera recording. It blinks when the battery is exhausted or the tape is at its end.

16 **Accessory shoe**

17 **DUAL CAPSULE MIC (microphone)**
Select the appropriate function according to the shooting conditions.

18 **Lens hood**

19 **START/STOP button ㊻**
Used for low position recording.

20 **Focus ring (55)**

21 **SLOW/STILL ADJ (adjust) buttons ㊾**

22 **DATE and TIME buttons (75)**
Press to display or turn off the date or time.

23 **COUNTER SELECT switch (90)**
When the tape in which the time code is not recorded is played back, set to the right position to.display the counter indication.

24 **COUNTER RESET button (96)**
Press to reset the counter or time code to zero.

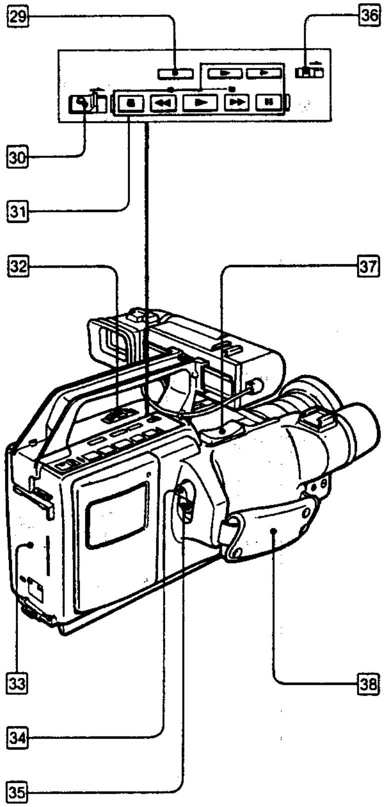
25 **BATT (battery eject) knob ㉔**

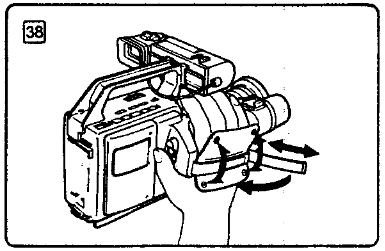
26 **VIDEO/AUDIO OUT (output) jacks (phono jacks) (65), (90)**

27 **RFU DC OUT (RFU adaptor DC output) jack (special minijack) (62), (65)**
Supplies power to the RFU adaptor.

28 **S VIDEO OUTPUT connector (4-pin mini-DIN) (69), (69)**

A-3





A-3

29 DATA SCREEN button ●
Press to display the indication on the viewfinder screen on the TV.

30 EJECT (Cassette eject) button ●

31 Tape transport buttons
▷ (playback)
►► FF (fast forward)
◄◄ REW (rewind)
■ (stop)
❚❚ (pause)
❚► SLOW (slow speed playback)
❚❚► FRAME (frame-by-frame playback)

32 POWER switch
CAMERA: For camera recording
PLAYER: For playing back or editing tapes
OFF: Power off

33 Battery mounting surface

34 STANDBY switch ●
Slide up to set the unit to recording pause mode.

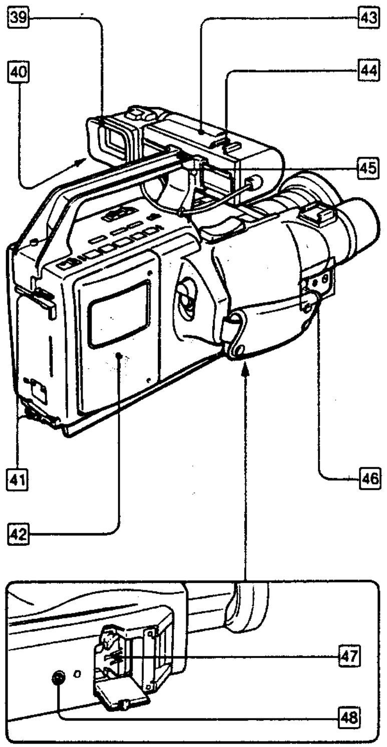
35 START/STOP button ●
Press to start and stop camera recording.

36 EDIT switch ●
Normally set it to the OFF position. When editing tapes, set in the direction of the arrow (ON).

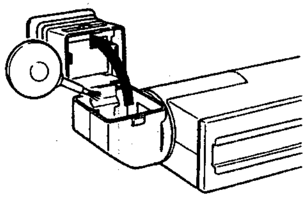
37 Variable power zoom button ●

38 Grip strap
Adjust the length so that your thumb can easily manipulate the START/STOP button.

A-4



A-5



A-4

39 Eyecup

40 Viewfinder lens adjustment lever ●
Adjust to your eyesight to assure good focus. Be sure to adjust this lever when shooting for the first time.

41 Hooks for shoulder strap
Attach a shoulder strap.

42 Cassette holder ●

43 Viewfinder
The picture being recorded or played back can be monitored in monochrome here. Also, data such as caution indicators and function mode are displayed on the viewfinder screen.

44 Accessory shoe

45 LOCK button ●
While pressing this button, slide the viewfinder.

46 BUILT-IN MIC (front microphone) SELECT switch ●
Normally set to the UNI position.

EXT MIC (external microphone) and DC OUT (microphone power output) jacks
Connect an external microphone.
The EXT MIC jack accepts Sony "plug-in-power" microphones and supplies power to them.

REMOTE connector
Connect the supplied handgrip or optional Remote Commander (RM-95, etc.)
When using a Remote Commander
When the POWER switch on the camera is set to PLAYER when a Remote Commander (Sony RM-95, etc.) is connected, the recordings on your tape will be erased if you press the REC button on the Remote Commander.

🎧 (earphone) jack

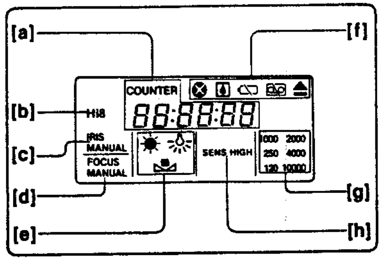
47 Lithium battery compartment ●

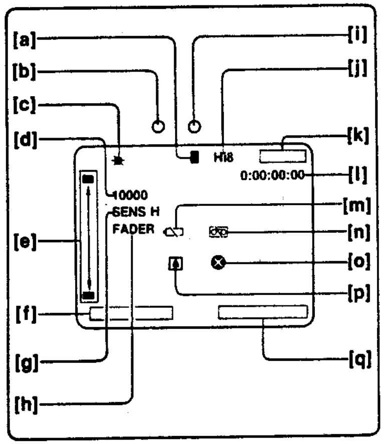
48 Tripod receptacle

A-5

To remove dust from inside the viewfinder
Turn the eyecup upward and clean the surface of the Cathode ray tube with a blower.

A-6





A-6

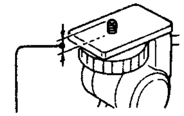
Indications in the display window

[a] Time/date/time code/counter indication
[b] High eight mode indication
[c] IRIS MANUAL indication
[d] FOCUS MANUAL indication
[e] Lights when the white balance is adjusted manually
[f] Caution indications
[g] Shutter speed indication
[h] SENS HIGH indication

Indications inside the viewfinder

[a] Lights when the focus is adjusted manually
[b] Narration microphone lamp (yellow)
[c] Lights when the white balance is adjusted manually.
[d] Shutter speed indication
[e] Lights when the iris is controlled manually
[f] Date
[g] Lights when the SENS button is pressed
[h] FADER indication
[i] Camera recording lamp (red)
[j] High 8 mode indication
[k] In the VTR operation mode, this indicates the tape transport function.
[l] Time code/tape counter
[m] Battery indication
[n] Tape indication
[o] Caution indication
[p] Dew indication
[q] Date/time

A-7



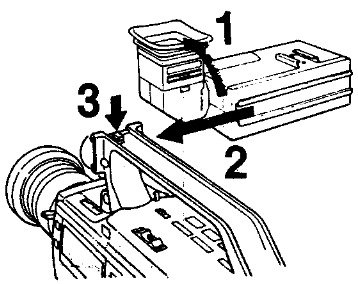
less than 6.5mm
Moins de 6,5mm
Kürzer als 6,5mm

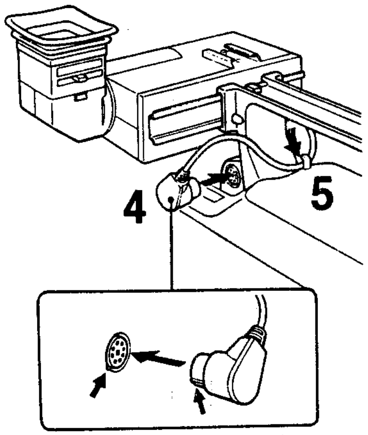
A-7

Note when attaching a tripod not manufactured by Sony
When attaching a tripod not manufactured by Sony, the length of the camera mounting screw must be less than 6.5mm. Otherwise the screw may damage the inner parts of the camera.

1-2. ATTACHING THE VIEWFINDER

B-1





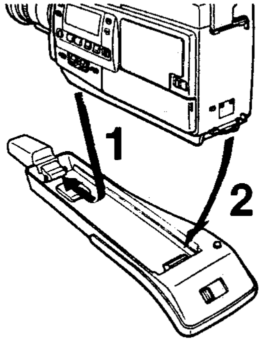
Before using the video camera recorder, attach the viewfinder B-1

1. Turn the eyecup upward.
2. Attach the viewfinder.
3. While pressing the LOCK button, slide the viewfinder to the appropriate position. The viewfinder can be set to one of four positions.
4. Align the projection of the plug with the groove of the connector and connect the viewfinder cable to the viewfinder connector.
5. Put the cable in the clamper.

Note
Before connecting the viewfinder cable to the viewfinder connector, turn off the power.

1-3. ATTACHING THE SHOULDER MOUNT AND THE HANDGRIP

B-2



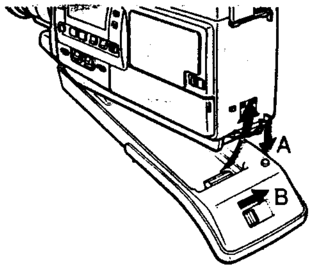
For stable shooting, attach the shoulder mount and the handgrip.

Attaching the Shoulder Mount B-2

1 Put the front bottom of the recorder on the shoulder mount and slide it to the front.
2 Push the back bottom until it locks.

Removing the Shoulder Mount B-3

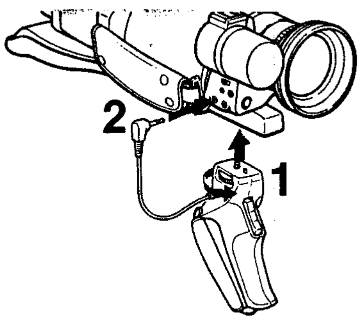
B-3



While pressing the RELEASE button (A), slide the RELEASE lever (B) in the direction of the arrow.

Attaching the Handgrip B-4

B-4



1 Tighten the screw of the handgrip as illustrated.
2 Connect the connecting cable of the handgrip to the REMOTE connector.

Notes on when the handgrip is connected to the video camera recorder.

- Set the STANDBY switch to STANDBY.
  If the STANDBY switch is set to LOCK, the STANDBY swtich and START/STOP button of the handgrip will not function.
- When the STANDBY switch of the handgrip is set to LOCK, the POWER switch of the video camera recorder will not function.
- When the STANDBY switch of the handgrip is set to STANDBY, even if the recording pause mode lasts for approximately 5 minutes, pause mode will not be automatically released.
- The zoom speed is not variable with the power zoom button of the handgrip.

1-4. POWER SOURCES

Selection of Power Sources

This manual shows the operations on one of the following power sources.

		Power source	Accessory to be used
Place	Outdoors	Battery pack	Battery pack NP-77H, NP-77 or NP-55 (page 24) Battery case EBP-77 or EBP-55 (page 26)
	Indoors	House current	AC power adaptor AC-V30 or AC-V55 (page 28)
	In the car	12 V or 24 V car battery	DC pack DCP-55 (page 28)

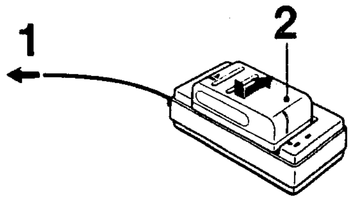
Notes on power source

- Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted cassette tape. If this is done by accident, supply the power again immediately and turn on the power switch.
- Be careful not to let any metal object touched on the metal part on the battery pack or AC power adaptor. When the battery pack is not to be used, keep it in its case.

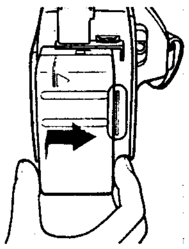
Optional Accessories for Charging

- **AC-V55 AC power adaptor**
  Two battery packs can be charged simultaneously.
- **BCA-70 or BCA-80 battery charge adaptor, ACP-88 AC pack and NPA-55 battery adaptor**
  For charging, insert an NP-55 into the NPA-55.
- **BC-55/77 battery charger**
  Portable battery charger for charging an NP-77H/77/55 battery on 100–240 V AC.

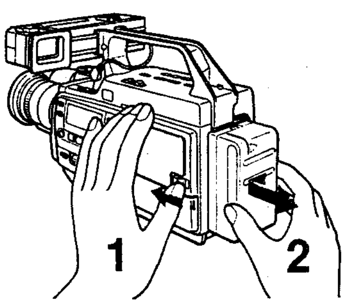
C-1



C-2



C-3



Battery Pack — NP-77H, NP-77 or NP-55

First, charge the battery pack. C-1
Use the AC-V30 AC power adaptor.
The charging time is about 2 hours for an NP-77H or NP-77 battery pack, or about 1 hour for an NP-55 battery pack.

1 Connect the AC-V30 to a wall outlet.
2 Attach the battery pack to the AC-V30.
  Align the grooves on the battery pack with those on the AC-V30, and while pressing the battery pack, slide it as illustrated until it locks.

To attach the battery pack to the video camera recorder C-2
Align the right side of the battery pack with the line on the recorder, and while pressing the battery pack, slide it to the right.
Make sure that the battery is fitted completely to the mounting surface. Imperfect fit may damage the projections on the recorder.

To remove the battery pack C-3
While pressing the BATT knob in the arrow direction, slide and pull out the battery pack as illustrated.

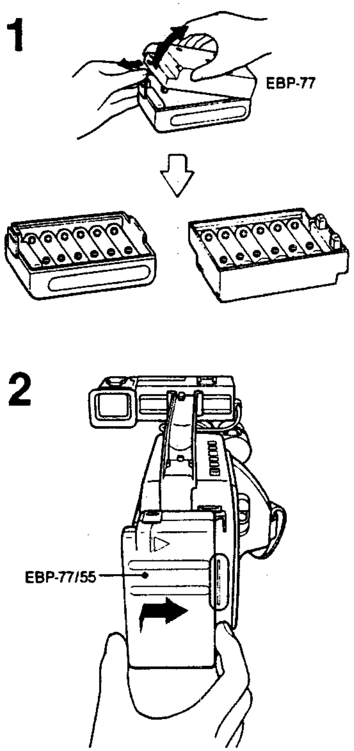
Battery life
A fully-charged battery pack provides the following continuous camera recording time (approximately):

NP-77	45 min.
NP-77H	1 hour.
NP-55	22 min.

When the video camera recorder is not in use, remove the battery pack.
If the battery is installed, even if the POWER switch is set to OFF, a very small amount of electric current flows.

When the battery becomes weak
The ▭ indication blinks inside the viewfinder and in the display window.
Replace the battery pack with the fully charged one.

C-4



Notes
- The video camera recorder consumes power even in the recording pause mode. When recording short scenes using the recording pause mode, the battery life is less than half that of continuous recording.
  When recording is not to be started soon, turn off the power with the STANDBY switch.
- If the battery pack is not fully charged or if it is used in a cold place, its operating time is also shortened.

Using the NP-22 battery pack
A fully-charged NP-22 battery pack can operate this unit for approximately 35 minutes. For using the NP-22, an optional NPA-22 battery adaptor is necessary.

Battery Case — EBP-77 or EBP-55 C-4

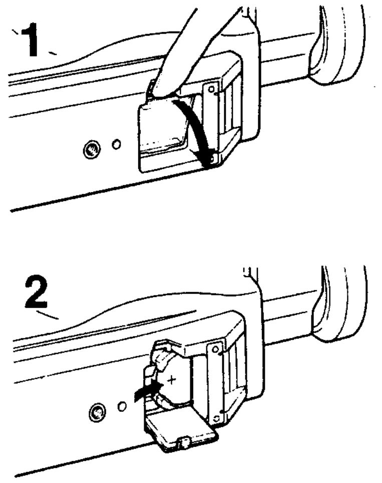
1 Insert the R6 (size AA) alkaline batteries into the battery case.
    EBP-77: 12 batteries
    EBP-55: 6 batteries
2 Align the right side of the battery case with the line on the recorder, and while pressing the battery case, slide it to the right.

To remove the battery case
While pressing the BATT knob on the recorder, slide and pull out the battery case.

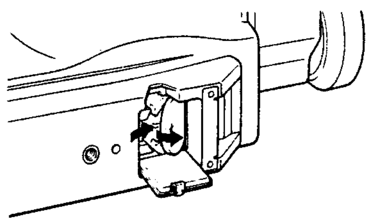
Battery life
The EBP-77 provides approxmately 45 minutes and the EBP-55 approximately 22 minutes of continuous indoor camera recording.

Notes on the battery case
- Be sure to use the alkaline batteries
- The battery case cannot be used in a cold place.
- The ▭ indication may not blink when the batteries in the battery case become weak, as the voltage of the battery lowers suddenly. If the cassette compartment does not open, replace the batteries.

C-7



C-8



Lithium Battery C-7

To insert the lithium battery
This unit uses a lithium battery to activate the clock. Before operating the unit for the first time, install the supplied lithium battery:

1 Open the cover of the lithium battery compartment on the bottom.
2 Install the supplied CR2025 lithium battery with the ⊕ side facing out.
3 Close the cover.

To remove the lithium battery C-8
Press the side of the battery in the direction indicated for installation.

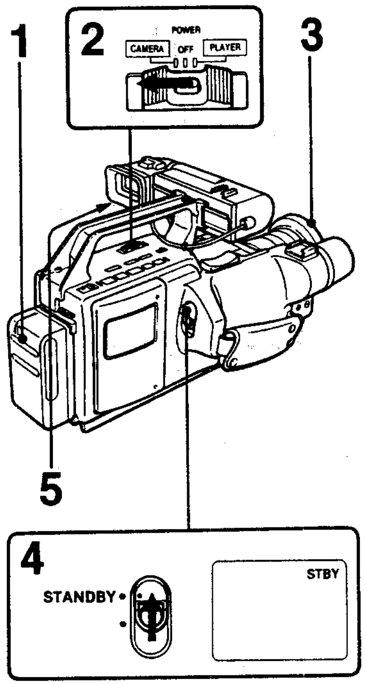
Lithium battery life
Approximately 1 year in normal operation.
When the lithium battery becomes weak, the numbers blink in the display window and the time indication will blink on the viewfinder screen for about 5 seconds.
In this case, replace the battery with a Sony CR2025. Use of another battery may present a risk of fire or explosion.
After replacing the battery, readjust the date and time. (If the battery is replaced with the battery pack attached, the readjustments are not necessary.)

Notes on lithium battery
- Keep the lithium battery out of the reach of children.
  Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- When the battery pack is not attached, even if the lithium battery is installed, the indications in the display window will not light up.

WARNING
Battery may explode if mistreated.
Do not recharge, disassemble or dispose of in fire.

1-5. ADJUSTMENT OF THE VIEWFINDER LENS

D-3



The position of the viewfinder lens for optimum vision varies depending on the person. D-3

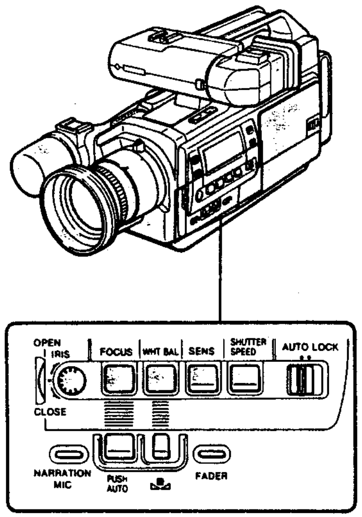
1 Connect a power source.
2 While pressing the small button, set the POWER switch to CAMERA.
3 Remove the lens cap.
4 Slide the STANDBY switch up.
5 Adjust the viewfinder lens adjustment lever so that the indications displayed on the viewfinder screen come into sharp focus.

Adjustment of the viewfinder lens is necessary only for your initial use, or for use after someone else.

Note
If you leave the unit in the recording pause mode for 5 minutes or more, the unit will be automatically turned off. To resume recording pause mode, slide the STANDBY switch down once and slide it up again. To start recording, press the START/STOP button.

1-6. SELECTION OF THE AUTOMATIC AND MANUAL ADJUSTMENTS

D-4



Function of the AUTO LOCK Switch

When the AUTO LOCK switch is set to AUTO LOCK, the iris, focus, white balance, sensitivity and shutter speed (1/50) are adjusted automatically. But under certain circumstances, manual adjustment is better for effective recording. D-4

When the AUTO LOCK switch is set to the right position, each manual function works as follows.

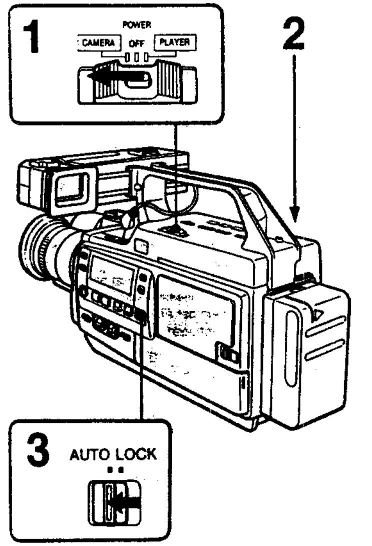
IRIS See page 64.	• When the shooting subject is too dark, turn to OPEN. • When the shooting subject is too bright, turn to CLOSE. • Even if the AUTO LOCK switch is set to the right, when it is set to the center position, the auto function will work.
FOCUS See page 54.	■ → No indication (Manual) (Auto) Each push of the button sequentially changes the function.
PUSH AUTO See page 58.	When this button is kept depressed, it activates auto focusing in the manual focusing mode.
WHT BAL See page 60.	No indication → ▲ → ☀ → 💡 (Auto) Each push of the button sequentially changes the function.
See page 62.	When the WHT BAL is set to ▲, the white balance is adjusted manually
SENS See page 66.	Press to get high sensitivity.
SHUTTER SPEED See page 68.	No indication → 1/120 → 1/250 → 1/1000 (1/50) 1/10000 ← 1/4000 ← 1/2000 Each push of the button sequentially changes the function.

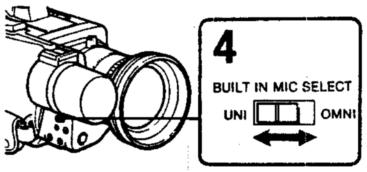
Notes

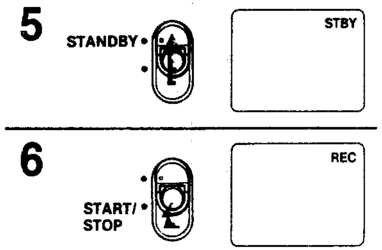
- Just after the battery pack is attached to the recorder, even if the AUTO LOCK switch is set to the right position, the AUTO LOCK function will work and the white balance, sensitivity and shutter speed (1/50) are adjusted automatically. However the focus is set to the manual mode and the iris is set to the condition just before the battery is removed.
- If the AUTO LOCK switch is set to AUTO LOCK after each function is adjusted manually, and then set to the right position again, tne previous manual setting will be recalled.

1-7. EASY CAMERA RECORDING WITH AUTOMATIC ADJUSTMENT

E-1







How to Record

E-1

1 While pressing the small button, set the POWER switch to CAMERA.
2 Insert the cassette.
3 Set the AUTO LOCK switch to AUTO LOCK.
4 Set the BUILT-IN MIC SELECT switch.
  UNI: Uni-directional microphone to pick up specific sounds
  OMNI: Omni-directional microphone to pick up sounds equally from all directions
  Set to OMNI when there is strong wind, and the effects of noise from the wind will be reduced,
5 Slide the STANDBY switch up.
  The unit will enter the recording pause mode.
6 Press the START/STOP button.
  Recording will start.

Recording mode

When Hi8 tape is used: the tape is recorded in the Hi8 video system.

When standard 8 mm tape is used: the tape is recorded in the standard 8 mm video system.

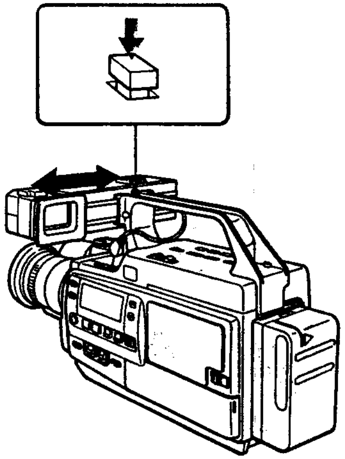
Check on the viewfinder screen

STBY: Displayed during recording pause mode.
REC: Displayed during recording.

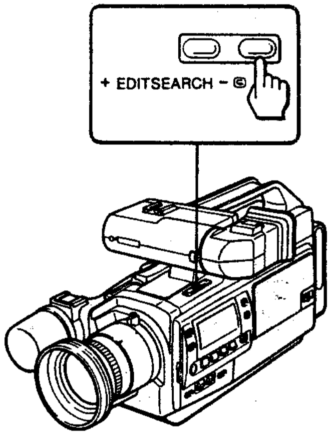
To stop recording

Press the START/STOP button again.
The unit will enter tne recording pause mode.
Avoid rough handling or mechanical shock to the unit. A smooth transition between scenes may not be made.

E-2



E-3



To view with your left eye E-2
While pressing the LOCK button, pull out the viewfinder. The viewfinder can be set to one of four positions.

To change the angle of the viewfinder
The viewfinder can be turned 90 degrees up and down to make high-angle or low-angle shooting possible. For low position recording, press the START/STOP button on the front.

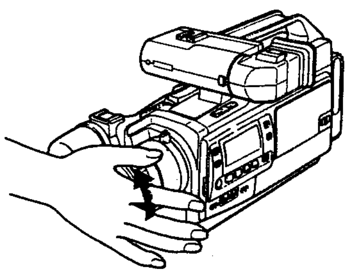
To check the last portion of the previous recording E-3
1 Set the recorder in recording pause mode by pressing the START/STOP button.
2 Press the – ⊜ EDITSEARCH button momentarily.

The last few seconds of the recorded portion are rewound and then the recorded picture is monitored on the viewfinder screen. The unit then enters the recording pause mode.

If the picture has not been recorded
The video head may be contaminated. Clean the heads using the Sony video head cleaning cassette.

After using
Slide the STANDBY switch down and set the POWER switch to OFF. (You need not press the center button when setting the switch to OFF.)

E-4



For low position recording
The viewfinder can be turned 90 degrees up.
1 Slide the STANDBY switch up.
2 Press the START/STOP button on the front.

When attaching the lens hood, filter or conversion lens, hold the focus ring.

When removing, press it with the palm of your hand and turn it counterclockwise. E-4

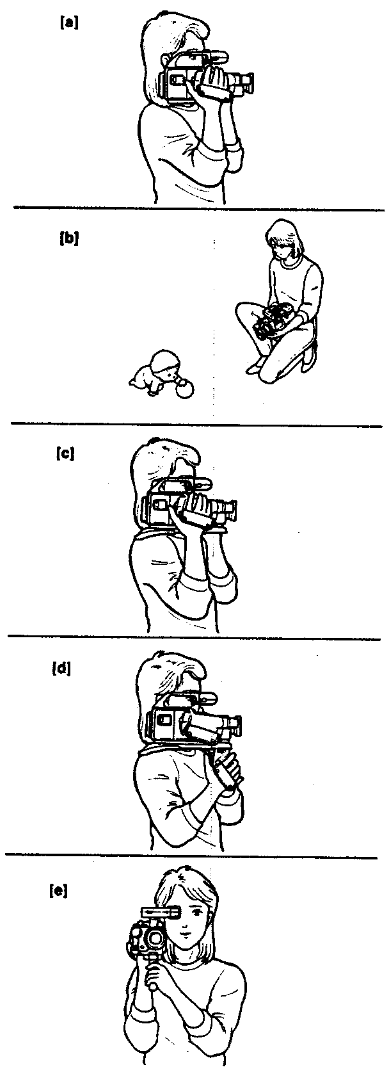
Notes on power
- If the POWER switch is moved during recording, the tape will stop.
- When the pause mode lasts for 5 minutes or more, the unit will automatically enter the stop mode. To resuem the recording pause mode, slide the STANDBY switch down and up again, or press the START/STOP button.

Notes on light sources
- Should you shoot a subject in bright conditions such as sunlight just after shooting in a dark place, the picture may not appear on the viewfinder screen. In this case, move the camera away from the subject to resume the normal condition.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.

Notes on automatic adjustment
- During recording with auto focusing, do not turn or stop the focus ring forcibly.
- Keep the lens clean.

The camera recording with automatic adjustment may not produce optimum results under certain conditions. In this case, manually adjust the focus, white balance, sensitivity and iris. See pages 54, 60, 64 and 66.

E-5



Holding the Camera E-5

When the shoulder mount and the handgrip are not attached

[a] Handy type

[b] For low position recording
Turn the eyecup upward and press the low position START/STOP button on the front.

when the shoulder mount is attached

[c] On shoulder type 1

When the shoulder mount and the handgrip are attached

[d] On shoulder type 2

[e] For more stable shooting
Use your both hands.

Indications inside the Viewfinder or in the Display Window

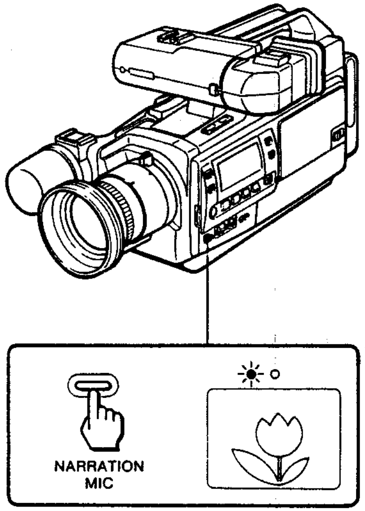
Indications for caution

🔋	Slow blinking • The battery is weak. Fast blinking • The battery is exhausted.
📼	Slow blinking • The tape is near its end. • No cassette is inserted. Slow blinking with ⏏ • The tab on the cassette is out. Fast blinking with ⏏ • The tape is at its end.
⏏	Blinking • A fault has occurred in the unit. See page 136.
⊗	Blinking • The gap of the head is clogged. (Head contamination) See page 108.
💧	Blinking • Moisture has condensed inside the unit. See page 106.

Indications showing the function in use

▮	• Lights when the focus function has been set to the manual mode. • Blinks when the auto focus function does not work due to low light or low contrast.
STBY, REC, PLAY, PAUSE, ◀◀.▶▶.II▶, SLOW, STILL	Lights to show tape transport functions in the VCR operation mode.
☀, 💡, ▲	Lights when the white balance function is set to manual. ☀ Outdoor, 💡 Indoor, ▲ One push white balance
▲	Blinks when the One push white balance is not set.
○	Lights in red during recording
○	Lights in yellow when the NARRATION MIC button is pressed.

E-6

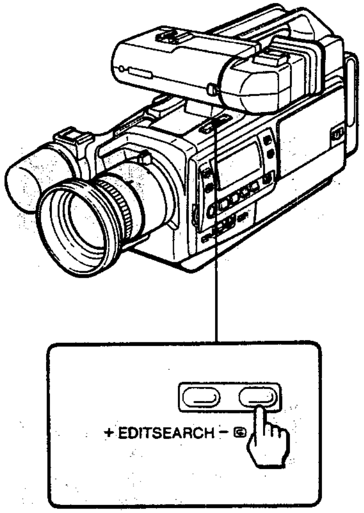


Use of the Narration Microphone

Press the NARRATION MIC button to record your narration clearly in an environment where there is a lot of background noise. When the button is pressed, yellow lamp will light. E-6
To turn off the narration microphone, press the NARRATION MIC button again.

Notes
- When the narration microphone (yellow) lamp lights, the front microphone does not function.
- When the front microphone or external microphone is used, press the NARRATION MIC button to turn off the narration microphone.

E-7



Instant Playback on the Spot E-7

You can monitor the picture just recorded on the viewfinder screen.
1 While pressing the small button, set the POWER switch to CAMERA.
2 Slide the STANDBY switch up.
3 Press the "–" side of the EDITSEARCH button to view the playback picture in reverse.
4 Press the "+" side of the EDITSEARCH button to view the playback picture.

During Recording, to Record Again on the Previous Recorded Portion (Editsearch)

1 Slide the STANDBY switch up.
2 Monitor the picture on the viewfinder screen and locate the point from which the recording is to begin again with the EDITSEARCH button.
Press the "+" side of the EDITSEARCH button to advance the picture at a normal playback speed, or the "–" side to reverse the picture.
3 At the desired point, release the EDITSEARCH button.
The unit will be set to recording pause mode.
4 Press the START/STOP button to start recording.

Smooth recording can be made even if the recording is stopped and started again, or even if the power is turned off and on again, provided that the cassette is not removed. But, if the cassette has been removed, proceed as above.

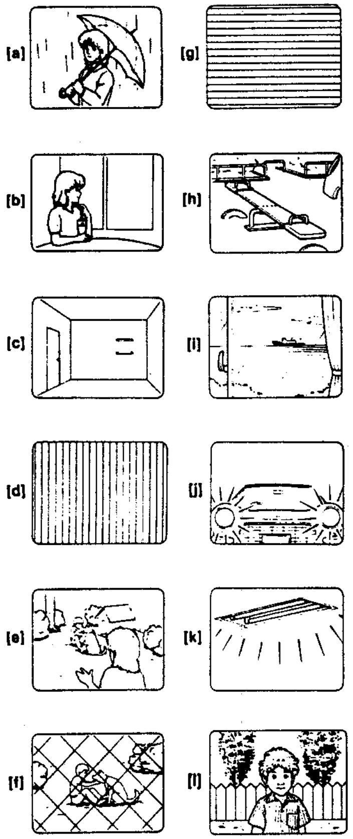
To monitor the sound while viewing the playback picture on the viewfinder screen
Connect an earphone to the ⊚ jack.
1 While pressing the small button, set the POWER switch to PLAYER.
2 Press the ◀◀ button to rewind the tape.
3 Press the ■ button to stop the tape.
4 Press the ▶ button to start playback.

To stop the playback, press the ■ button.

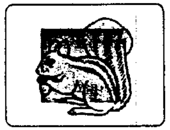
Note
To record smoothly, turn off the STANDBY switch when changing the battery.

1-8. MANUAL FOCUSING

F-1



F-2



Use manual focusing when shooting subjects difficult to focus automatically.

Poor Conditions for Auto Focusing F-1

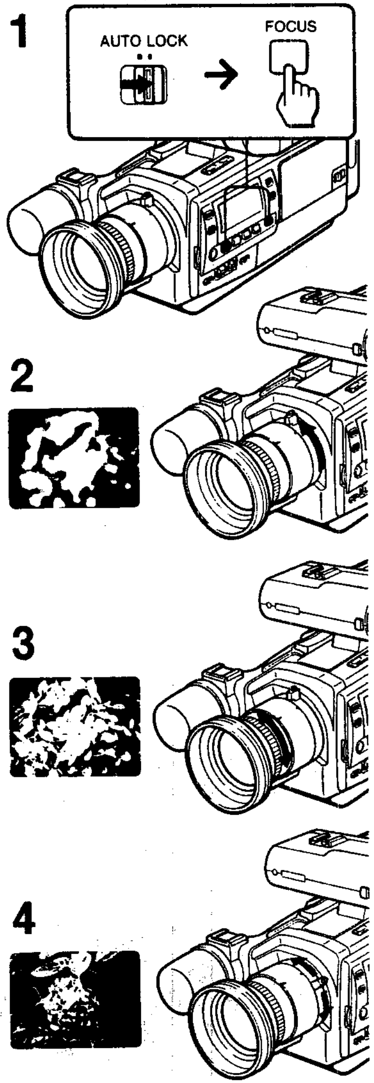
[a] Insufficient light
[b] Too much bright light behind the subject
[c] Subjects with flat colors and less contrast — wall, sky, etc.
[d] Finely detailed repetitive patterns
[e] When the distance between subjects at the center is extreme (e.g. one subject is close, the other is away)
[f] Subjects beyond screens, nets, etc. or when another subject passes across the camera
[g] Horizontal stripes
[h] Diagonal object
[i] When there is frosted glass between the shooting object and the recorder
[j] Bright object or object reflecting light
[k] When shooting under a fluorescent lamp at the shutter speed set to 1/250, 1/1000, 1/2000, 1/4000, 1/10000.
[l] Strong contrast behind the subject

Other Uses of Manual Focusing

- When the white mark inside the viewfinder blinks
- When using special effects lenses or filters
- When shooting still subjects on a tripod
- To save battery wear
  (When the AUTO LOCK switch is set to AUTO LOCK, the auto focusing operates to move the focus ring automatically even in recording pause mode. This causes the battery to wear continuously.)
- For focusing in close-up shooting, see page 74.

Auto focusing system
The auto focusing system incorporated in this unit utilizes high-precision sensors to determine picture contrast at the center of the viewfinder screen (the blue portion marked in the illustration) and adjust focus accordingly for automatic focusing F-2

F-3



Notes
Auto focus does not function momentarily in these cases;
- When the shutter speed or the white balance is changed
- When the iris is being adjusted
- When lighting conditions change quickly
- When the zooming is changed from wide-angle to telephoto
- When the sensitivity is changed.

It may take several seconds to get focus when the camera is rapidly panned from a distant subject to a near subject with less contrast. In this case, adjust the focus manually.

Note on automatic adjustment
While recording with the auto focusing function, do not touch the focus ring forcibly.

To Focus Manually F-3

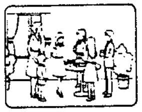
1. Set the AUTO LOCK switch to the right position and if the white mark (■) is not shown in the viewfinder, press the FOCUS button.
2. Turn the manual zoom lever to the telephoto position (88) to make the subject as large as possible in the viewfinder.
3. Turn the focus ring to achieve sharp focus.
4. Set the desired shot length using the manual zoom lever.

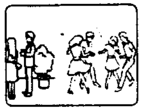
Some helpful hints
- When shooting a scene with lots of movement in bright light, the subject can be kept in good focus by setting the zoom lever to the wide-angle position and the focus ring to 2 m, regardless of the distance between the subject and the recorder.
- When shooting in low light situations such as indoors, the depth of field in proper focus is very shallow. For best results, shoot at wide angles, after focusing in telephoto.
- The figures on the focus ring indicate the distance between the subject and the ϕ mark on the recorder.
- Recommended illumination of this unit is more than 300 lux (28 footcandles). If shooting is done indoors or under other circumstances where light is insufficient, video lights must be used for best results. Under adequate light condition, the depth of field in proper focus is wider and a sharper picture will be recorded.

1-9. MANUAL WHITE BALANCE ADJUSTMENT

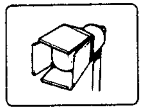
G-1

[a]

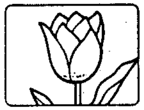




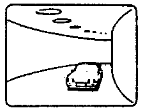
[b]



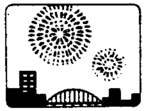
[c]



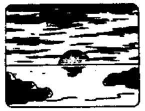
[d]



[e]



[f]



In most cases, the auto white balance function of this unit operates automatically. However, if it does not work correctly in the conditions listed below, adjust the white balance manually.

Difficult Conditions for Auto White Balance G-1

[a]	When lighting conditions change quickly	☆
[b]	When the light source for the subject is different from that illuminating this unit, such as when the subject is in a spotlight, etc.	☆
[c]	When shooting a monochromatic subject or the background is monochromatic	◘
[d]	• When recording under a sodium lamp • When recording under a mercury lamp • When recording under a white fluorescent lamp	☆
	When recording under a colour matching fluorescent lamp	☀
[e]	When recording outdoors, such as a night view, neon sign or fireworks	☀
[f]	When recording outdoors, such as scenes after sunset or scenes before sunrise.	☀

To Adjust the White Balance Manually

1 While pressing the small button, set the POWER switch to CAMERA.
2 Slide the STANDBY switch up.
3 Set the AUTO LOCK switch to the right position.
4 Select the desired white balance mode by pressing the WHT BAL button.
Each push of the WHT BAL button cyclically changes the indication inside the viewfinder.

No indication (Auto) → ◘ → ☀ ─┐
↑───── ☆ ─────┘

For the color temperature and the white balance adjustment, see page 127.

To adjust the white balance precisely

1 While pressing the small button, set the POWER switch to CAMERA.
2 Set the recorder to the manual focusing.
3 Slide the STANDBY switch up.
4 Press the WHT BAL button to indicate the ◘ mark inside the viewfinder.
5 With the supplied white lens cap on the lens, point the recorder at a light source (indoors) or a subject (outdoors).
6 Press the ◘ button. The ◘ mark lights up.
If the ◘ mark does not light, adjust the white balance automatically.
This function will be kept memorized for about 1 hour after the power is turned off.

When recording in studio light or video light

Press the WHT BAL button so that the ☆ mark lights up. The ☆ mark position has been set so as to adjust the white balance according to studio lights or video lights.

When recording in fluorescent light

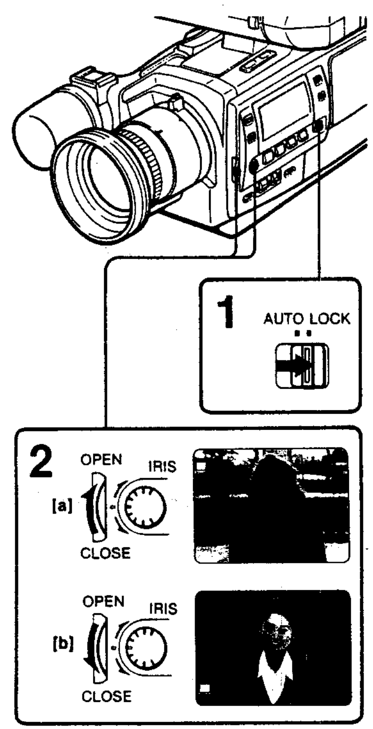
Use the AUTO or ◘ mode to adjust the white balance precisely.

Notes

- When the light source is changed, reset the ◘ mode again.
- When the one push white balance is adjusted for low light situations or without the white lens cap on the lens, even if the ◘ button is pressed, the ◘ indicator does not light up.
- The ◘ button does not function during recording.
- The white balance is related to iris and shutter speed adjustment. When the iris or shutter speed is adjusted manually, if the recorder is moved indoor to outdoor or vice versa, set the AUTO LOCK switch to AUTO LOCK and reset it to the right position again.
- When the recorder has been moved indoor to outdoor, or vice versa, or when the battery has been changed, slide the STANDBY switch up and point the recorder to a white object for about 10 seconds so that the white balance is adjusted properly.

1-10. MANUAL IRIS ADJUSTMENT

G-2



The iris is adjusted automatically when the AUTO LOCK switch is set to AUTO LOCK. When shooting a scene with strong contrast, adjust the iris manually.

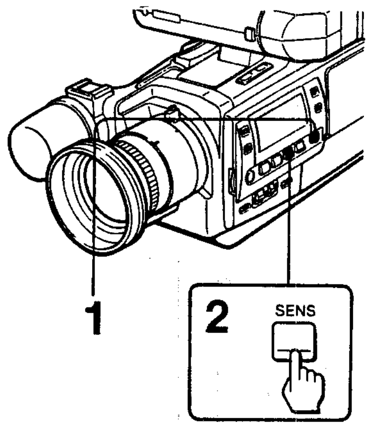
1 Set the AUTO LOCK switch to the right position.
2 Adjust the IRIS control.
   [a] When backlit shot results in the subject being too dark: **Turn IRIS toward OPEN.**
   [b] When a subject is too bright against a dark background: **Turn IRIS toward CLOSE.**

After shooting that particular scene, set the IRIS control to the center position or set the AUTO LOCK switch to AUTO LOCK.

Notes
- When the IRIS control is turned toward OPEN, the ▭ mark moves upward, and when turned toward CLOSE, it moves downward.
- Avoid pointing the recorder at the sun with the IRIS control set to OPEN.
- When the iris is adjusted manually and the power is turned off, the setting is not memorized.

1-11. MANUAL SENSITIVITY ADJUSTMENT

G-3



When the entire scene is too dark and the subject is not clear, adjust the sensitivity. G-3

1 Set the AUTO LOCK switch to the right position.
2 Press the SENS button.
   The SENS H indicator appears on the viewfinder screen.

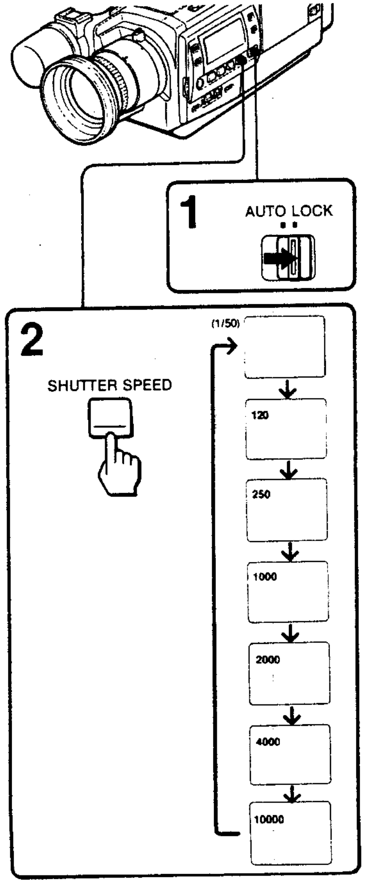
After shooting that particular scene, press the SENS button again or set the AUTO LOCK switch to AUTO LOCK.

Notes
- The manual sensitivity adjustment is effective only in a dark place.
- When the SENS button is pressed, the picture quality will be slightly reduced.

1-12. SHUTTER SPEED ADJUSTMENT

H-1

H-2



When a fast-moving subject is recorded at a normal shutter speed, its still picture may not be seen clearly when played back H-1. This can be improved by increasing the shutter speed.
The shutter speed of this unit can be selected from seven speeds, 1/50 (normal speed), 1/120, 1/250, 1/1000, 1/2000, 1/4000 or 1/10000 second.
However, when the shutter moves fast, it will not allow enough light to come into the lens, so the picture will be dark. Therefore, when recording at a high shutter speed, record in a brighter place than usual.
Choose an appropriate shutter speed according to the place and situation.
See the chart below for examples.

Example use	Recommended shutter speed
• On clear days, recording golf or tennis scenes (To view the hit ball clearly in the pause mode, set to 1/4000 or 1/10000) • Recording the skiers	1/10000, 1/4000 or 1/2000
• On overcast days, recording a moving merry-go-round or jet-coaster • Recording outdoors from inside a vehicle (for stable shooting)	1/1000 or 1/250
• Instead of the ND2 filter (To reduce the exposure level to approx. 1/2) • Recording indoors (for stable shooting)	1/120

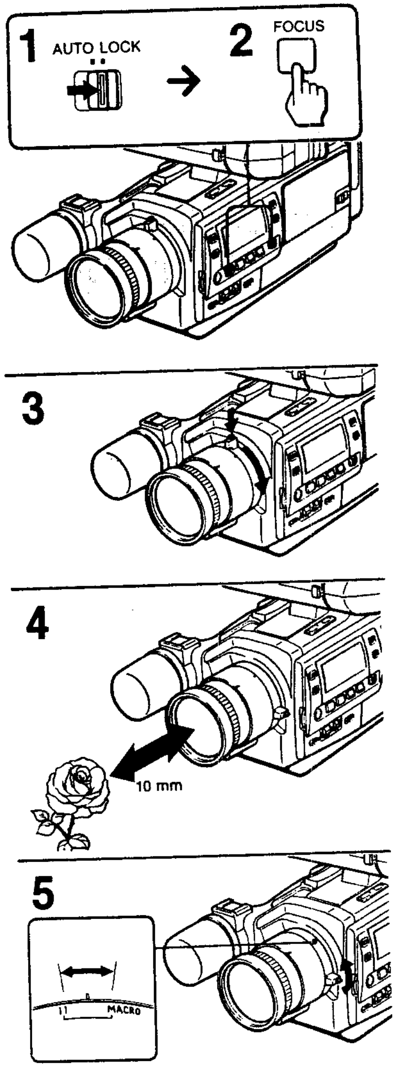
H-2

1 Set the AUTO LOCK switch to the right position.
2 Press the SHUTTER SPEED button repeatedly until the desired shutter speed indication appears on the viewfinder screen.
Each time the SHUTTER SPEED button is pressed, the indication changes:

No indication → 120 → 250 → 1000 → 2000 → 4000 → 10000
(1/50) (1/120)(1/250)(1/1000)(1/2000)(1/4000)(1/10000)

1-13. CLOSE-UPS (MACRO)

J



Even tiny objects can literally fill the screen for dramatic close-up effects.
Remove the lens hood before operation.
When the recorder is set to the manual focus mode (the white mark lights in the display window), operate from step 3.

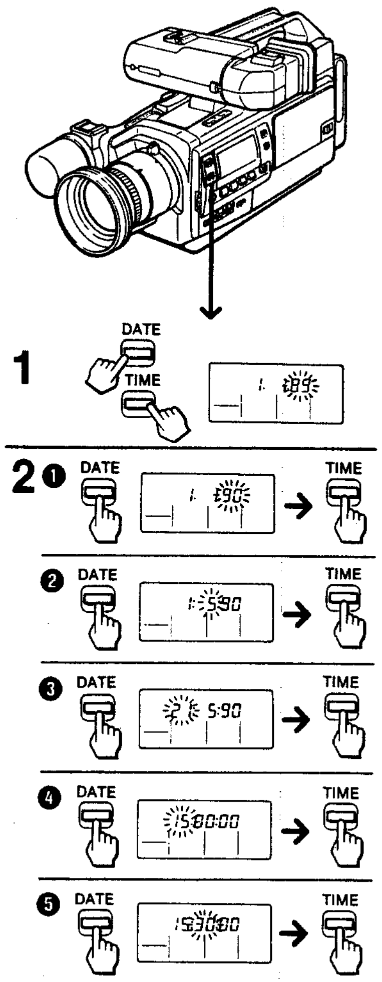
1 Set the AUTO LOCK switch to the right position.
2 Press the FOCUS button so that the white mark appears in the display window.
3 Turn the zoom lever to the MACRO position, pressing the macro set button.
4 Bring the recorder as close as necessary to obtain the desired subject size.
The subject can be as close as approximately 10 mm ($^{13}/_{32}$ in.) from the lens surface.
5 Turn the zoom lever within the MACRO range to focus sharply. (The power zoom button can be used instead of the zoom lever.)

Notes

- Auto focusing does not function properly in macro shooting.
- If the subject is closer than 10 mm, it cannot be brought into focus.
- When shooting in macro, the depth of field is very shallow, so pay attention to focus. To keep the subject in focus, use a tripod or monopod.

1-14. RECORDING DATE OR TIME

K-1



Once the date and the current time are adjusted, the date or time can be recorded together with the picture.

Before setting the date and time, make sure that the fully-charged battery pack and lithium battery are installed.

To Set Date and Time K-1

1. Press the DATE and TIME buttons simultaneously **for more than 3 seconds.** The date indication will appear in the display window (date/time setting mode). The DATE button now functions as the + button and the TIME button functions as the next button.
2. Adjust the ❶ year, ❷ month, ❸ day, ❹ hour and ❺ minute in sequence, following the illustration. First adjust the blinking digits with the DATE button, and then press the TIME button. After adjusting the minute digits, press the TIME button at the same time with an announced time signal.

The clock starts operating. There is no need to readjust the date and time as long as the lithium battery remains.

To clear the time indication from the display
Press the TIME button again.

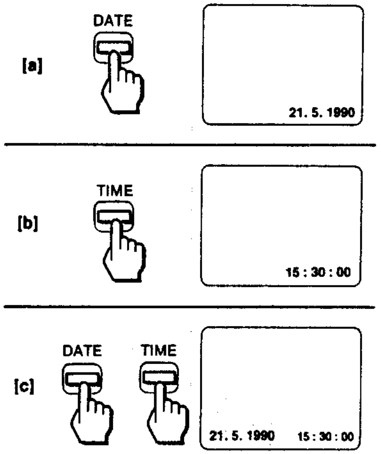
The DATE button can be pressed in two ways
- When you keep the button pressed, the digits will advance continuously.
- When you press and immediately release the button, the digits will advance by one.

To check the preset date or time
Press the DATE or TIME button in the recording pause mode. When the same button is pressed again, the indication goes off.

To readjust an incorrect date or time
Set the unit to date/time setting mode and press the TIME button repeatedly until the incorrect digit blinks. Correct it with the DATE button and press the TIME button. After adjusting the minute digits, press the TIME button at the same time with an announced time signal.

Note
The date and time cannot be set during recording. If the recorder is set to the recording mode while setting the date and time, the setting mode will be released.

K-2



To Record the Date or Time K-2

During camera recording or in recording pause mode, press the DATE and/or TIME button to display the date and/or time on the viewfinder screen.
The date and/or time being displayed will be recorded together with the picture.

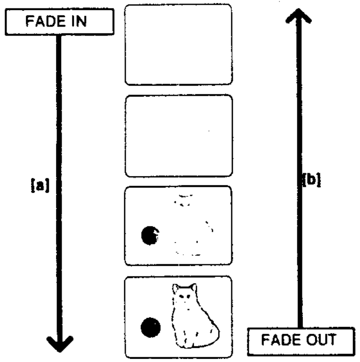
K-2

Button pressed	Indication	
	inside the view-finder	in the display window
[a]	date	date
[b]	time	time
[c]	date and time	time

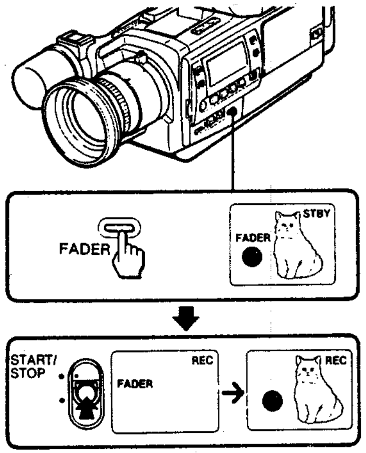
To stop recording the date or time
Press the DATE and/or TIME button to turn off the indication. The picture recording will continue. When the date and/or time indication inside the viewfinder disappears, the time code or the counter indication will be displayed in the display window.

1-15. FADE-IN AND FADE-OUT

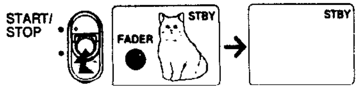
L-1



L-2



L-3



When fade-in, the picture and sound will appear gradually from a white, silent scene. **[a]**
With fade-out, the picture and sound will disappear gradually. **[b]**

To Fade in L-2

1 Slide the STANDBY switch up to set the unit to recording pause mode.
2 Press the FADER button.
3 Press START/STOP button to start camera recording.
Fade-in will be performed.

To Fade out

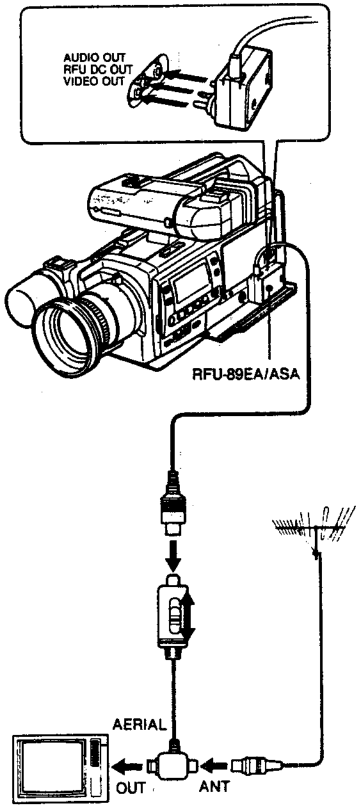
1 Start camera recording.
2 Press the FADER button.
3 At the point where fade-out is to be started, press the START/STOP button.
Fade-out will be performed and then recording will stop. L-3

To cancel FADER mode before fade-in or fade-out
Press the FADER button so that the FADER indication disappears.

Notes
- The FADER button does not function while the STBY indicator is blinking on the viewfinder screen immediately after the POWER switch has been set to CAMERA. Wait until the STBY indicator lights.
- The FADER mode is cancelled automatically once fade-in or fade-out has been performed.

1-16. PREPARATION FOR PLAYBACK

M-1



Connecting a TV without audio/video input connectors M-1

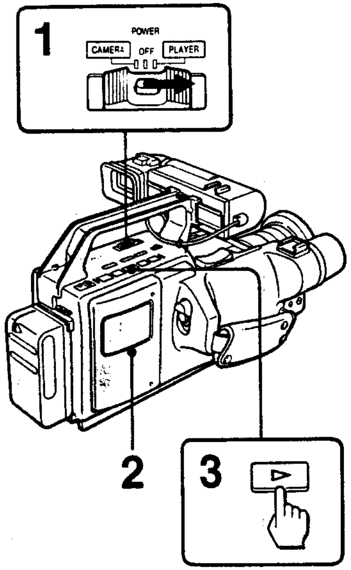
1 Connect the RFU-89EA/ASA RFU adaptor to the EVO-9100P.
2 Connect the aerial, EVO-9100P and TV to the aerial selector.
Use a 75-ohm coaxial cable for aerial connection.
3 RFU-89EA only: Set the I/G selector according to the TV system of your country.
4 Adjust one of the TV programme positions to receive the signal from the video camera recorder. See "Adjusting the TV" on page 84.
5 Set the selector switch on the aerial selector as follows:

For viewing a playback picture → VTR
For viewing TV programmes → ANT

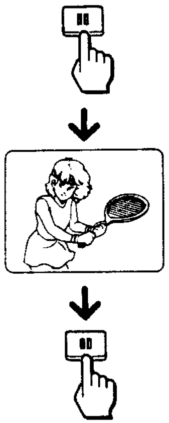
6 Select the same programme position on the TV as that selected in adjusting the TV.

1-17. PLAYBACK

N-1



N-2



Turn on the TV (or colour monitor), and select the programme position for viewing a playback picture (or set the TV/VIDEO selector to VIDEO).

N-1

1 While pressing the small button, set the POWER switch to PLAYER.
2 Insert a cassette.
3 Press the ▷ button.
Playback will start.

The recording mode is selected automatically.

To stop the tape, press the ■ button.

After using, be sure to set the POWER switch on the recorder to OFF.

To view a still picture N-2
Press the ❚❚ button during playback. To resume playback, press the ❚❚ button again.

Monitoring a High-Speed Picture

During playback

1 In the playback mode, press the ◀◀ or ▶▶ button.
The picture will be monitored at high speed as long as it is kept pressed.
2 Release the ◀◀ or ▶▶ button at the desired point.
Normal playback will resume.

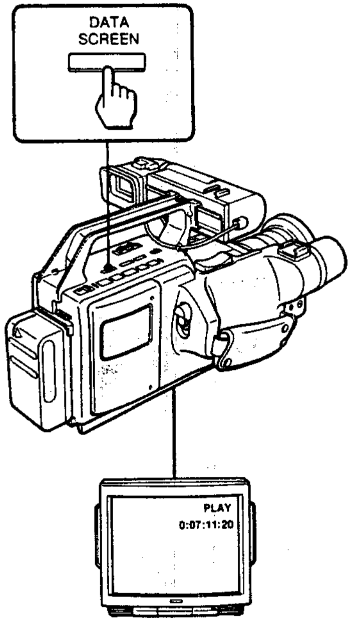
During fast-forward or rewind

1 Press the ▶▶ button in fast-forward mode or press the ◀◀ button in rewind mode.
The picture is displayed while the button is kept pressed.
2 Release the ◀◀ or ▶▶ button to resume normal fast-forward or rewind mode.

Notes

- If you move the position of the POWER switch during playback, the tape will stop. When you move the POWER switch to CAMERA in the playback pause mode, however, the unit will enter recording pause mode.
- When the pause mode lasts for 5 minutes or more, the unit will automatically enter the stop mode.
- Streaks will appear and the sound will be muted in the high-speed picture.

N-3



Frame-by-frame playback
Press the ❚❚▶ button in the still picture mode. To resume normal playback, press the ▷ button.

Slow motion playback
Press the ❚▶ button in the still picture mode or playback mode. To resume normal playback, press the ▷ button.

To adjust the frame-by-frame and slow playback pictures
Press the SLOW/STILL ADJ-buttons.
The adjustment can be kept memorized until the lithium battery is exhausted.

To adjust the still picture
If the still picture appears to shake, press the "+" or "−" of the SLOW/STILL ADJ button until the picture stabilizes. The adjustment can be kept memorized until the lithium battery is exhausted.

Notes

- When the playback picture is viewed on another VTR or the viewfinder of this unit, adjust the picture again.
- When a tape is recorded on another VTR, adjust the playback picture. However in some cases the picture may not be adjusted.

To Display the Indication on the Viewfinder Screen on the TV N-3

Press the DATA SCREEN button.
The indication on the viewfinder screen is superimposed on the TV programme.
It is convenient to check the indication on the TV screen when the playback picture is viewed on the TV or when the video camera recorder is operated from a distance using the Remote Commander.

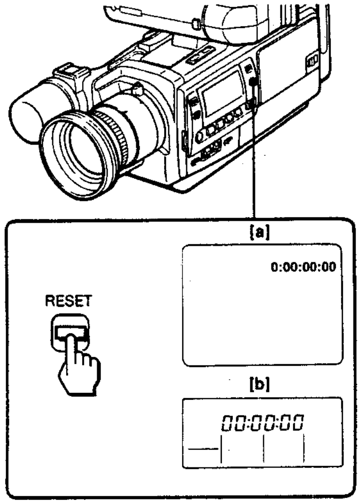
To clear the indication, press the DATA SCREEN button again.

Notes

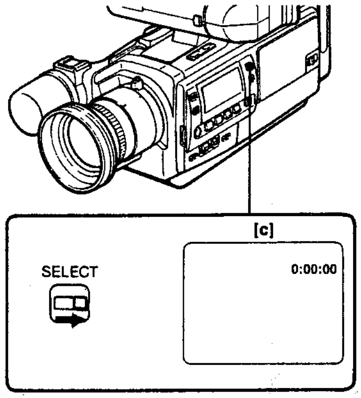
- To edit from the EVO-9100P to another VTR, clear the indication on the TV or the indication will be recorded with the picture.
- During playback or in the still picture, shaking of the data indications may appear.

1-18. USE OF THE TIME CODE OR LINEAR TIME COUNTER

O-1



O-2



At recording

The time code is recorded automatically.
The tape is precision-edited by use of time code and it is also convenient for locating a point where you want to view when the tape is played back. O-1

[a] inside the viewfinder
[b] in the display window

Note
The frame number is not displayed in the display window.

At playback

When the COUNTER SELECT switch is set to TC, the time code is displayed automatically. When a tape in which the time code is not recorded ("-:--:--:--" mark is displayed) is played back, set the COUNTER SELECT switch to the right position. The counter number will be displayed. O-2

[c] inside the viewfinder

Notes
- When the linear time counter is displayed, even if the COUNTER RESET button is pressed, the time code will not be set to "0:00:00:00".
- When a tape in which the time code is recorded is played back, even if the COUNTER RESET button is pressed, the time code will not be reset.
- The time code is reset only in recording mode or recording pause mode.

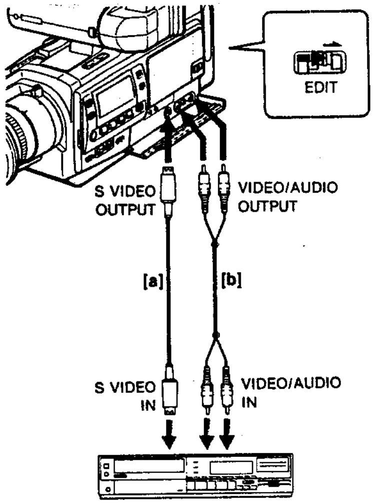
About the time code
A continuous number (consisting of hour, minute, second and frame) can be attached on each picture being recorded on the tape. The TV picture consists of 25 frames per second. The number corresponding to one frame is the time code.

Note
This time code is for the 8 mm video system and it is not compatible with the time code of other video systems.

About the linear time counter
When the COUNTER RESET button is pressed, the counter is reset in the recording or playback mode and the number is counted up. This is the relative counter.

1-19. TAPE EDITING

P



To edit a home movie tape, you will need another VTR or another video camera recorder.

To Edit onto Another VTR P

1. While pressing the small button, set the POWER switch on the EVO-9100P to PLAYER and turn on the other VTR.
2. Slide the EDIT switch on the EVO-9100P in the direction of the arrow.
3. Set the input selector on the VTR to LINE.
4. Press the II button on the EVO-9100P during playback at the point where you want to start recording.
5. Press the record button on the other VTR, pressing the II button.
6. Release the II buttons on both units. Recording will start.

About the connecting cords
[a] When the VTR or video camera recorder is equipped with the S video input connector, connect the S VIDEO OUTPUT on this unit to the S video input with the supplied connecting cord with S connectors.
[b] When the VTR to be used is a stereo type, use the VMC-910MS/920MS connecting cord.

After editing, turn off both units and be sure to slide the EDIT switch in the reversed direction to the arrow.

To cut off an unnecessary portion
Press the II button on the recorder at the beginning of the unnecessary portion.
Release it where you want to resume recording.

Function of the EDIT switch
Slide this switch in the direction of the arrow (ON) whenever you edit tapes. Signal loss that results from tape-to-tape transfer will be reduced, achieving more accurate signal transfer.
When recording or playing back normally, keep this switch in the reversed direction to the arrow (OFF).

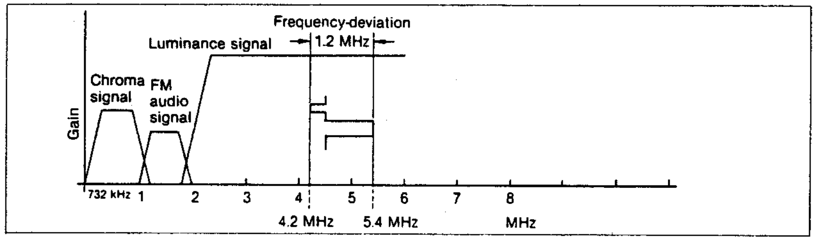
1-20. Hi8 (HIGH EIGHT) VIDEO SYSTEM

The 8 mm video system employs a metal powder tape. This means the video camera recorder is capable of recording a large amount of information and enhances picture quality. Taking advantage of the 8 mm video system, the Hi8 video system has been developed. The main characteristics of the Hi8 video system are as follows:

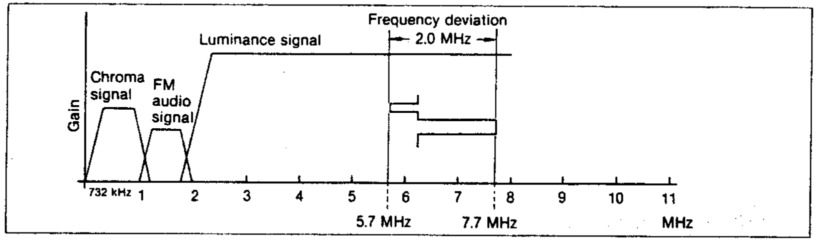
Super High Quality Picture

The information capacity is a key element for picture improvement. It can be increased by shifting up the FM carrier frequency range. In the Hi 8 video system, the FM carrier frequency range of the luminance signal is shifted up to 5.7–7.7 MHz. This is higher than the 4.2–5.4 MHz range of the standard 8 mm video system. Thanks to this, the horizontal resolution is improved to more than 400 lines.

Frequency allocation of the standard 8 mm video system



Frequency allocation of the Hi8 video system



Use of High-Grade Tape Corresponding to the Hi8 Video System

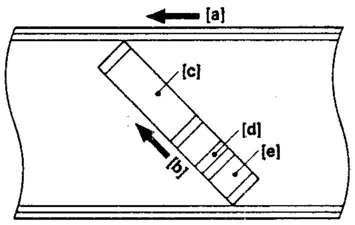
Metal evaporated tape is ideal for video systems because it has large magnetic energy that allows for high-density recording. The Hi8 video camera recorder uses such high-grade tape for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

S VIDEO (Separated Luminance/Chroma Signal) Input/Output Connectors

Conventionally, video equipments exchange the composite video signal containing the luminance (Y) signal and the chrominance (C) signal mixed. The composite video signal is liable to produce interference resulting in picture quality loss. On the contrary, an S VIDEO connector transmits or receives the video signal separated into the luminance signal and the chroma signal. Flickers and colour blur in the picture are minimized with the separated video signal, and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures an excellent editing quality with minimum picture quality loss.

About the 8 mm video tape

The video, audio and other signals are recorded on the 8 mm video tape as follows.



[a] Tape transport direction

[b] Head reading direction

[c] Video and monaural audio signals (standard track)

[d] Time code data

[e] PCM stereo audio signal (optional)

1-21. TROUBLE INDICATIONS

○ when the indication appears ☐ slow blinking ☐ fast blinking

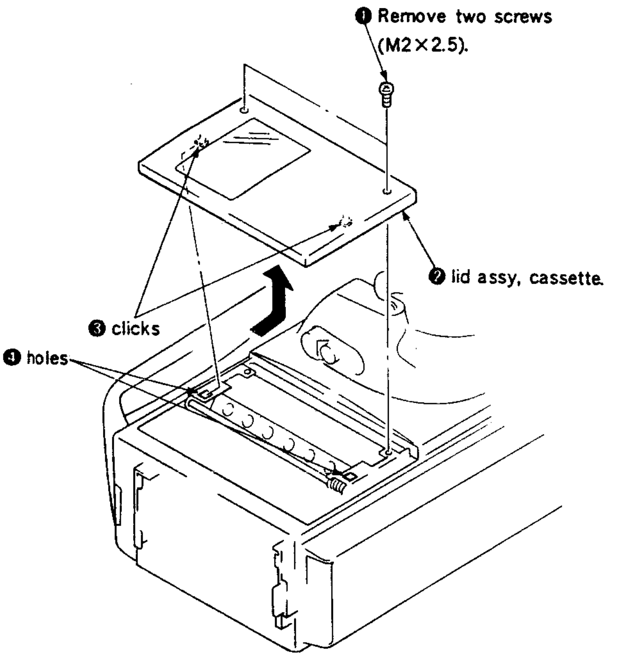
Cause	Position of the POWER switch		Indication		
	PLAYER	CAMERA	Indication to be shown inside the viewfinder	Camera recording/ battery/tape end lamp	Indication to be shown in the display window
The battery is fully exhausted.	○	○	🔋		
The battery is weak.	○	○	🔋		
The tape is at its end.		○	📼 ⏏		
The tape is near its end.		○	📼		
No cassette is inserted.		○	📼		
The tab on the cassette is out.		○	📼 ⏏		
Moisture has condensed inside the unit.	○	○	💧 ⏏		
The gap of the head is clogged.	○	○	⊗		
Other troubles	○	○	⏏		
The lithium battery is fully exhausted	○ (The indication inside the viewfinder does not appear.)	○	00:00:00 (5 seconds) ⇩ 1. 1. 1989 00:00:00		0:00:00 (counter/ time code) or —.—.— (date) or —:—:— (time)
The lithium battery is weak	○ (The indication inside the viewfinder does not appear.)	○	Current time (5 seconds) ⇩ Normal indication for operation		Normal indication for operation.

Mode with the POWER switch set to CAMERA	Indication		Time code indication		Mode with the POWER switch set to PLAYER	Indication
EDITSEARCH +	▷	➡	The time code is always indicated.	⬅	Playback Still Slow playback Frame-by-frame playback	▷ STILL SLOW II▶
			The time code may sometimes not be indicated.	⬅	High speed playback	⊖, ⊜
Standby	STBY	➡	Only when the time code is read by the unit, it is indicated. When the time code is alternately read or not, the indication may blink but this is not failure of the unit.	⬅	Fast-forward Rewind Recording pause	▶▶ ◀◀ PAUSE
EDITSEARCH –	◁	➡	The time code cannot be read by the the unit. "–:––:––:––" is indicated.	⬅	Stop	
Recording review	◀-▶	➡	In playback in reverse mode, as the time code cannot be read by the unit "–:––:––:––" is indicated.			

SECTION 2
DISASSEMBLY

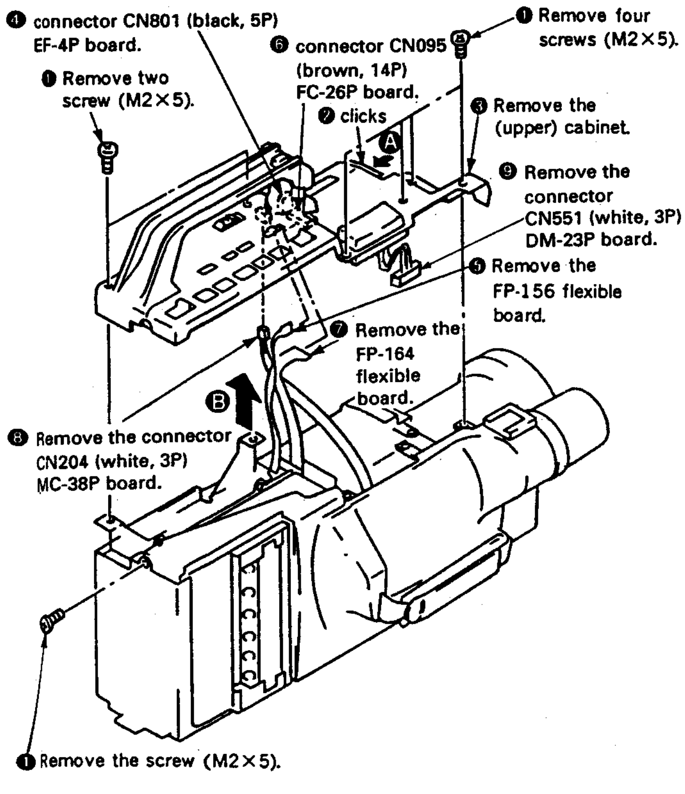
2-1. REMOVAL OF CASSETTE LID ASSY

Note: When mounting, fit the click ❸ into two holes completely, then, clamp two screws ❶.

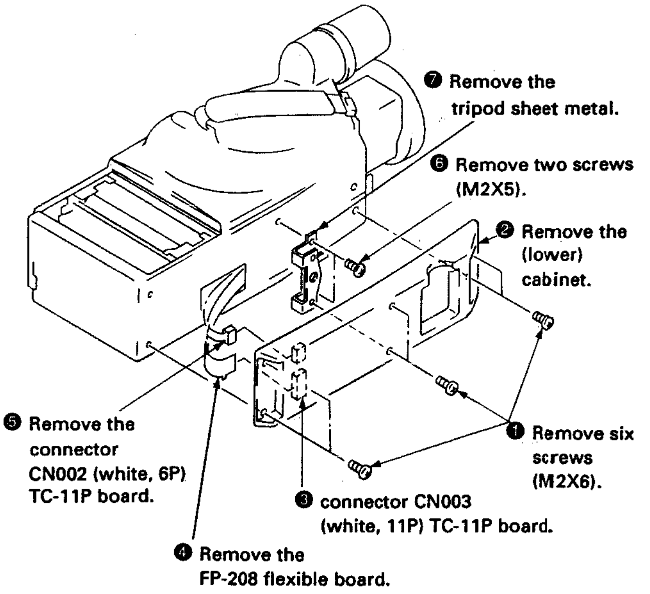

❶ Remove two screws
(M2×2.5).
❷ lid assy, cassette.
❸ clicks
❹ holes

2-2. REMOVAL OF CABINET (UPPER)

Note: While pushing the click ❼ to the direction of arrow mark Ⓐ, dismount the (upper) cabinet ❸ to the direction with arrow mark.

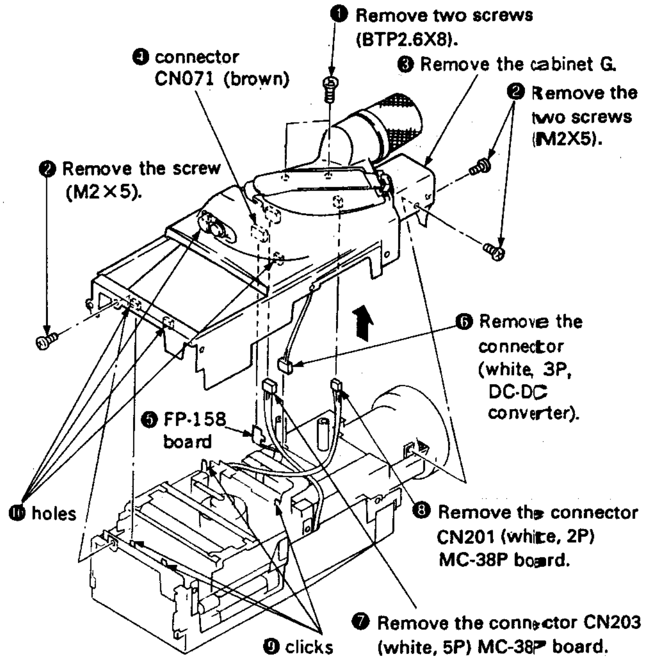

❹ connector CN801 (black, 5P)
EF-4P board.
❶ Remove two
screw (M2×5).
❻ connector CN095
(brown, 14P)
FC-26P board.
❼ clicks
Ⓐ
❶ Remove four
screws (M2×5).
❸ Remove the
(upper) cabinet.
❾ Remove the
connector
CN551 (white, 3P)
DM-23P board.
❺ Remove the
FP-156 flexible
board.
❼ Remove the
FP-164
flexible
board.
Ⓑ
❽ Remove the connector
CN204 (white, 3P)
MC-38P board.
❶ Remove the screw (M2×5).

2-3. REMOVAL OF CABINET (LOWER)

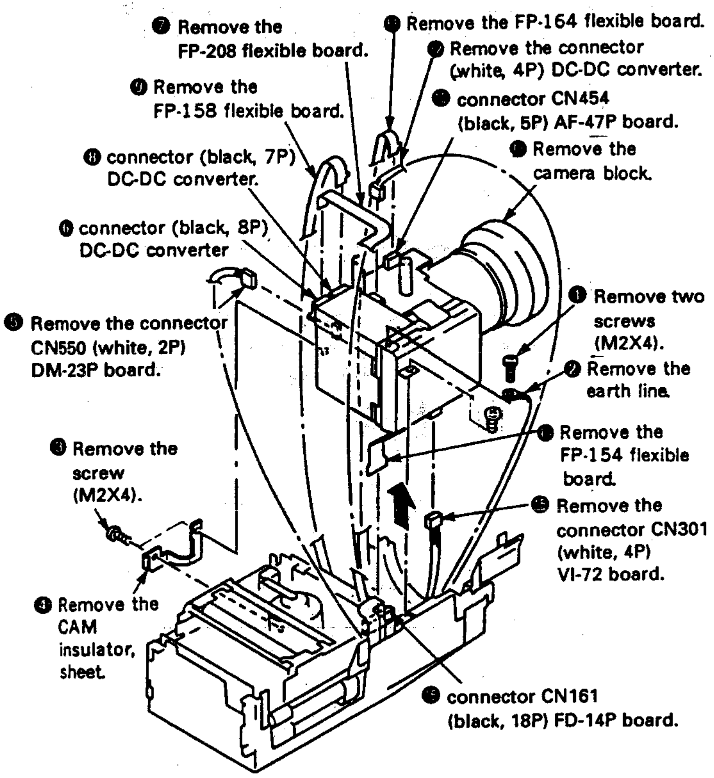

❼ Remove the
tripod sheet metal.
❻ Remove two screws
(M2X5).
❷ Remove the
(lower)
cabinet.
❺ Remove the
connector
CN002 (white, 6P)
TC-11P board.
❶ Remove six
screws
(M2X6).
❸ connector CN003
(white, 11P) TC-11P board.
❹ Remove the
FP-208 flexible board.

2-4. REMOVAL OF CABINET (G) ASSY

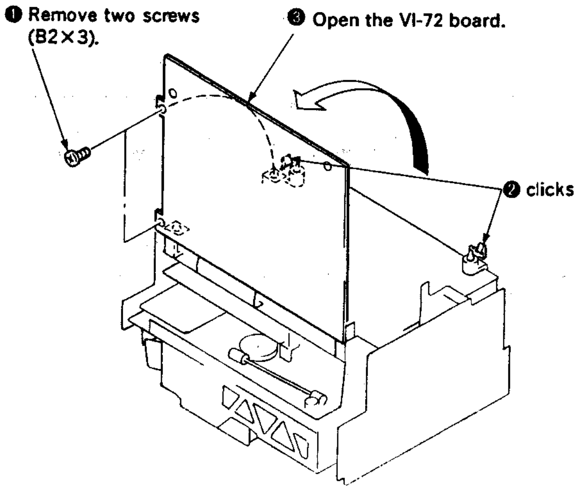
Note : When mounting, fit four clicks ❾ into four holes ❿.


❶ Remove two screws
(BTP2.6X8).
❹ connector
CN071 (brown)
❸ Remove the cabinet G.
❷ Remove the
two screws
(M2X5).
❷ Remove the screw
(M2×5).
❻ Remove the
connector
(white, 3P,
DC-DC
converter).
❺ FP-158
board
❿ holes
❽ Remove the connector
CN201 (white, 2P)
MC-38P board.
❼ Remove the connector CN203
(white, 5P) MC-38P board.
❾ clicks

2-5. REMOVAL OF VTR BLOCK

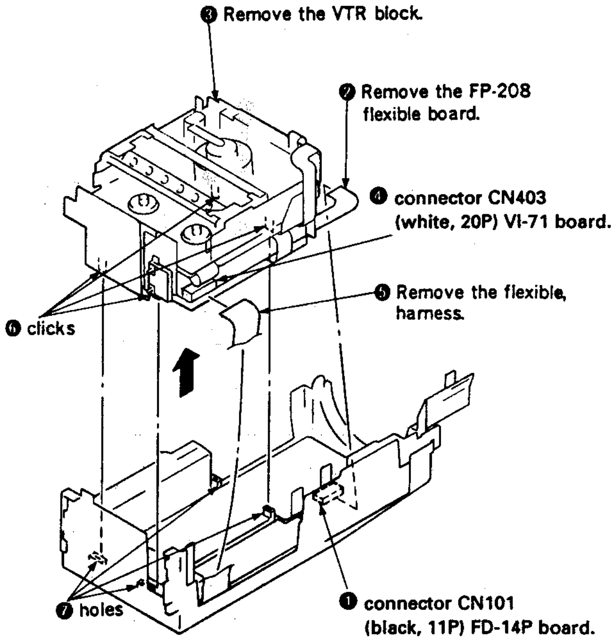

❼ Remove the FP-208 flexible board.
Remove the FP-164 flexible board.
Remove the connector (white, 4P) DC-DC converter.
❾ Remove the FP-158 flexible board.
connector CN454 (black, 5P) AF-47P board.
❽ connector (black, 7P) DC-DC converter.
Remove the camera block.
❻ connector (black, 8P) DC-DC converter
❺ Remove the connector CN550 (white, 2P) DM-23P board.
❶ Remove two screws (M2X4).
❷ Remove the earth line.
❸ Remove the screw (M2X4).
Remove the FP-154 flexible board.
Remove the connector CN301 (white, 4P) VI-72 board.
❹ Remove the CAM insulator, sheet.
connector CN161 (black, 18P) FD-14P board.

2-7. OPENING VI-72 BOARD

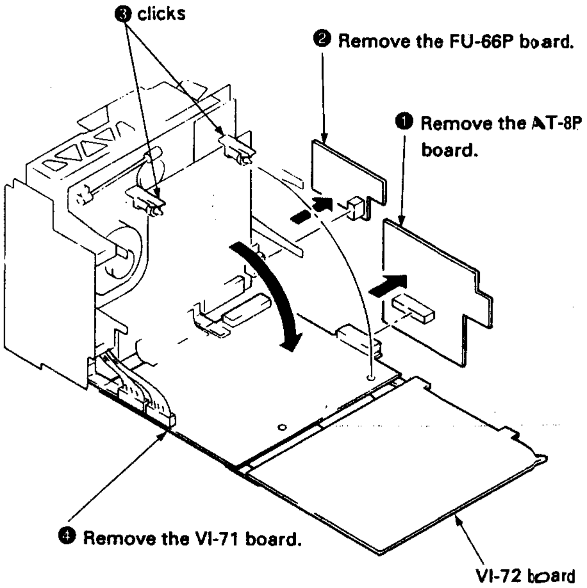

❶ Remove two screws (B2×3).
❸ Open the VI-72 board.
❷ clicks

2-6. REMOVAL OF VTR BLOCK

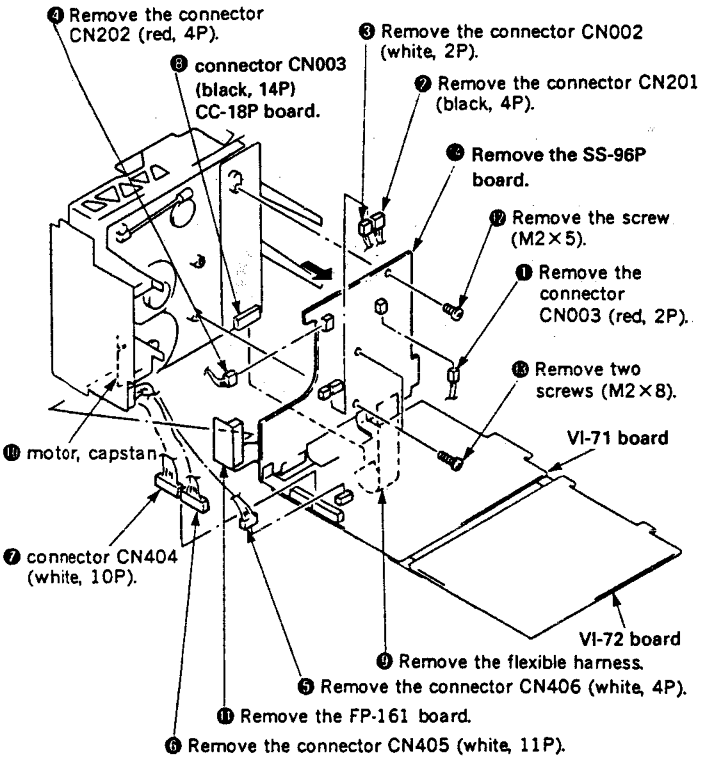
Note : When mounting, fit four clicks ❻ into four holes ❼.


❸ Remove the VTR block.
❷ Remove the FP-208 flexible board.
❹ connector CN403 (white, 20P) VI-71 board.
❺ Remove the flexible, harness.
❻ clicks
❼ holes
❶ connector CN101 (black, 11P) FD-14P board.

2-8. OPENING VI-71 BOARD

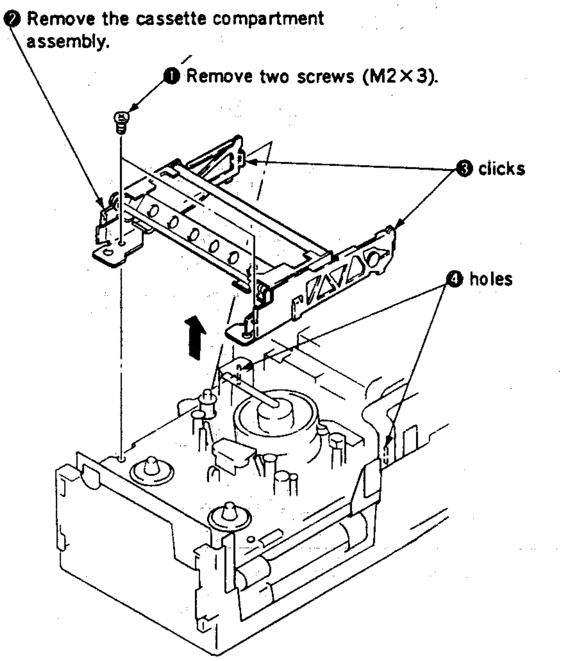

❸ clicks
❷ Remove the FU-66P board.
❶ Remove the AT-8P board.
❹ Remove the VI-71 board.
VI-72 board

2-9. REMOVAL OF SS-96 BOARD

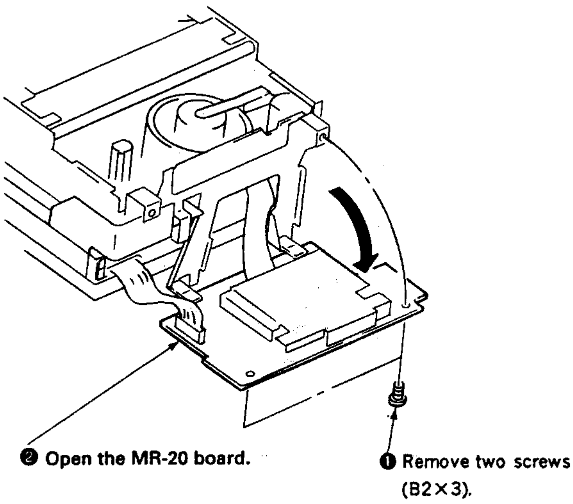

❹ Remove the connector CN202 (red, 4P).
❸ Remove the connector CN002 (white, 2P).
❽ connector CN003 (black, 14P) CC-18P board.
❷ Remove the connector CN201 (black, 4P).
⓮ Remove the SS-96P board.
⓬ Remove the screw (M2×5).
❶ Remove the connector CN003 (red, 2P).
⓭ Remove two screws (M2×8).
VI-71 board
❿ motor, capstan
❼ connector CN404 (white, 10P).
VI-72 board
❾ Remove the flexible harness.
❺ Remove the connector CN406 (white, 4P).
⓫ Remove the FP-161 board.
❻ Remove the connector CN405 (white, 11P).

2-11. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

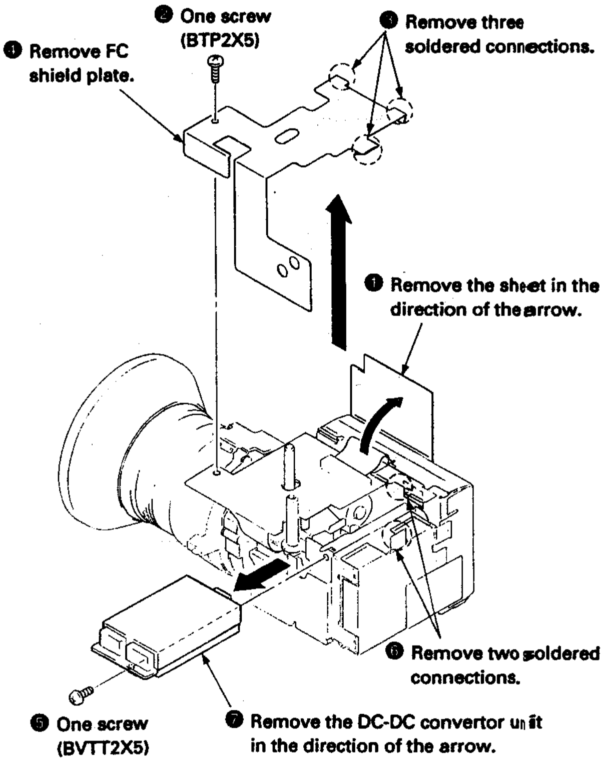
Note: When mounting the cassette compartment assembly ❷, fit two clicks ❸ into two holes ❹, then, clamp two screws ❶.


❷ Remove the cassette compartment assembly.
❶ Remove two screws (M2×3).
❸ clicks
❹ holes

2-10. OPENING MR-20 BOARD

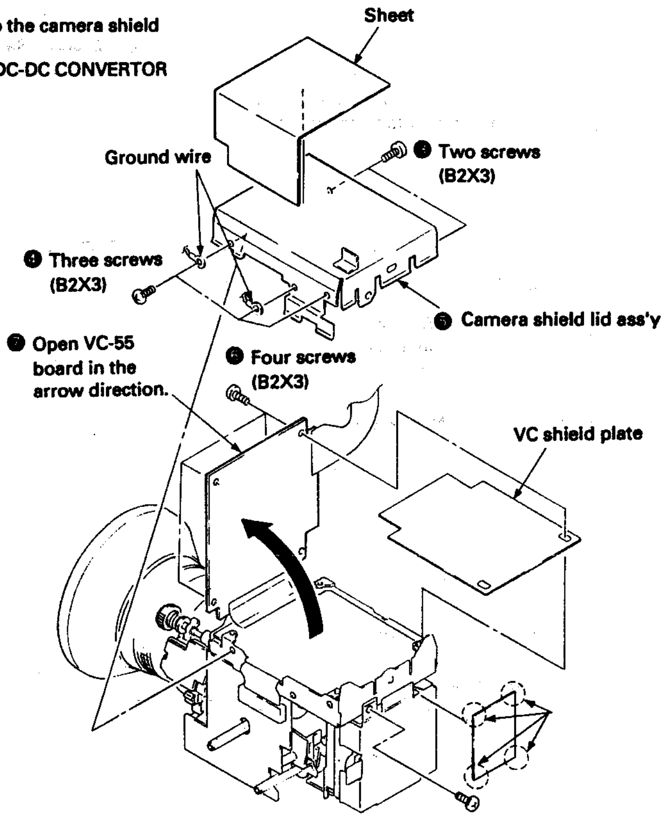

❷ Open the MR-20 board.
❶ Remove two screws (B2×3).

2-12. METHOD OF REMOVING DC-DC CONVERTOR UNIT (CAMERA)

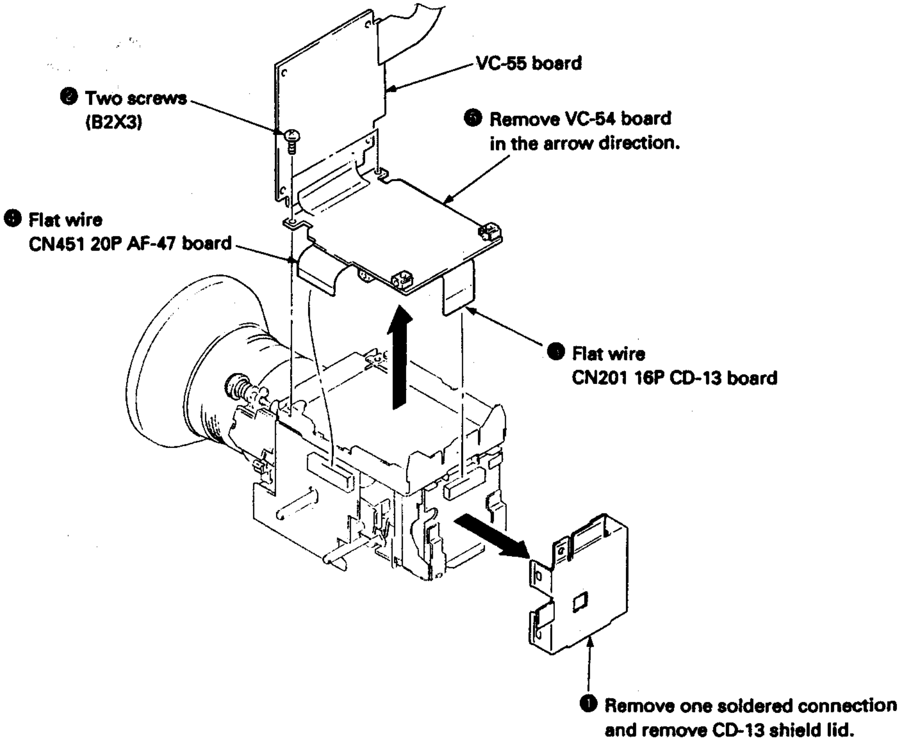

❷ One screw (BTP2X5)
❸ Remove three soldered connections.
❹ Remove FC shield plate.
❶ Remove the sheet in the direction of the arrow.
❻ Remove two soldered connections.
❺ One screw (BVTT2X5)
❼ Remove the DC-DC convertor unit in the direction of the arrow.

2-13. METHOD OF OPENING VC-55 BOARD

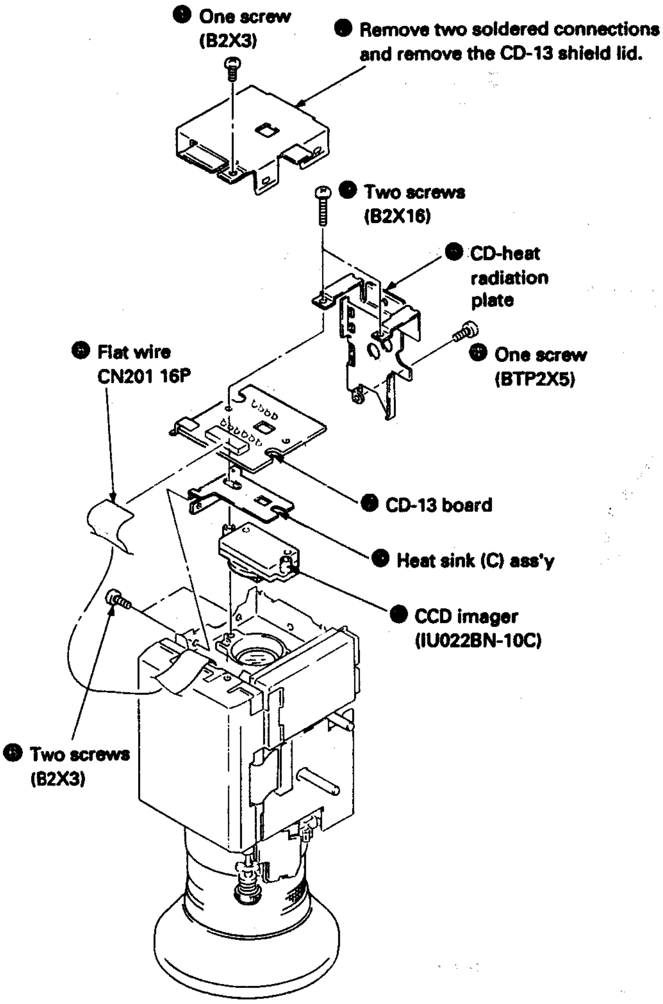
Note: Disconnect soldered connections onto the camera shield lid assy'y beforehand.
(See "2-12. METHOD OF REMOVING DC-DC CONVERTOR UNIT.")


Sheet
❸ Two screws (B2X3)
Ground wire
❹ Three screws (B2X3)
❺ Camera shield lid ass'y
❼ Open VC-55 board in the arrow direction.
❻ Four screws (B2X3)
VC shield plate

2-14. METHOD OF REMOVING VC-54 AND VC-55 BOARDS

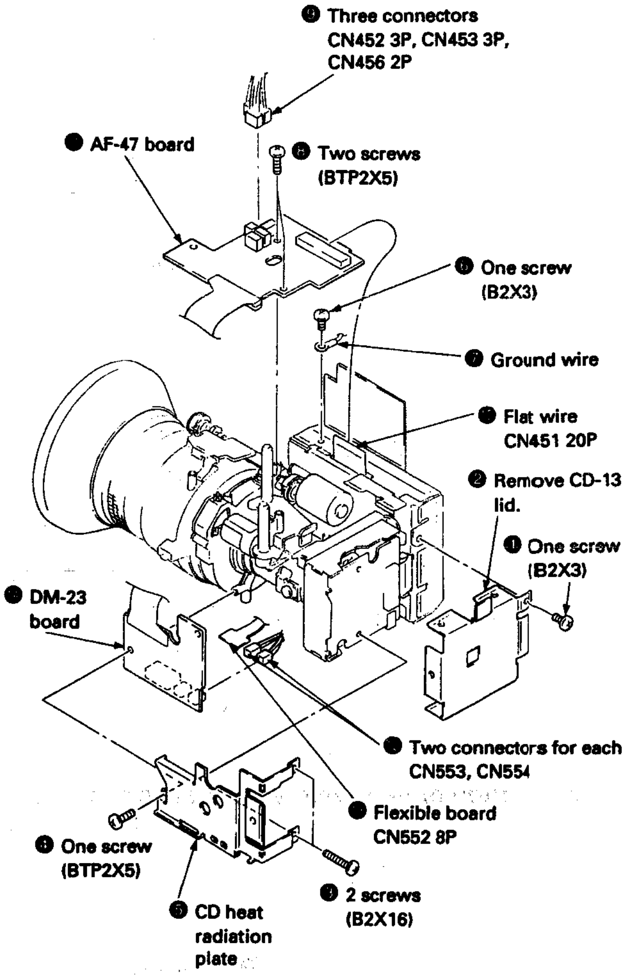

VC-55 board
❷ Two screws (B2X3)
❺ Remove VC-54 board in the arrow direction.
❸ Flat wire CN451 20P AF-47 board
❹ Flat wire CN201 16P CD-13 board
❶ Remove one soldered connection and remove CD-13 shield lid.

2-15. METHOD OF REMOVING CD-13 BOARD (CCD IMAGER)


❶ One screw (B2X3)
Remove two soldered connections and remove the CD-13 shield lid.
Two screws (B2X16)
CD-heat radiation plate
One screw (BTP2X5)
Flat wire CN201 16P
CD-13 board
Heat sink (C) ass'y
CCD imager (IU022BN-10C)
Two screws (B2X3)

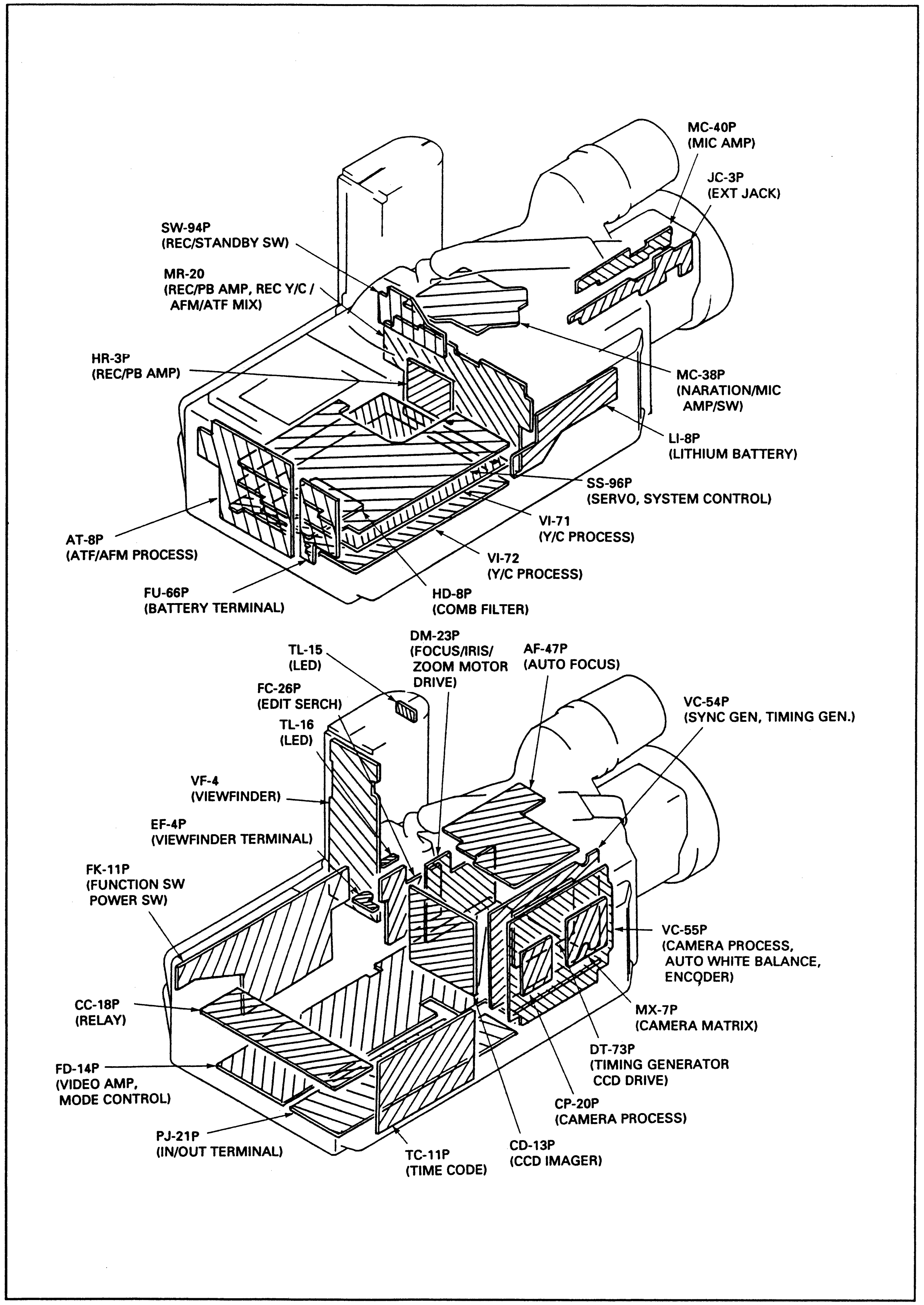
2-16. METHOD OF REMOVING AF-DM ASS'Y

NOTE: Remove the DC-DC convertor unit and FC shield plate beforehand. (See "1-13. METHOD OF REMOVING DC-DC CONVERTOR UNIT.")

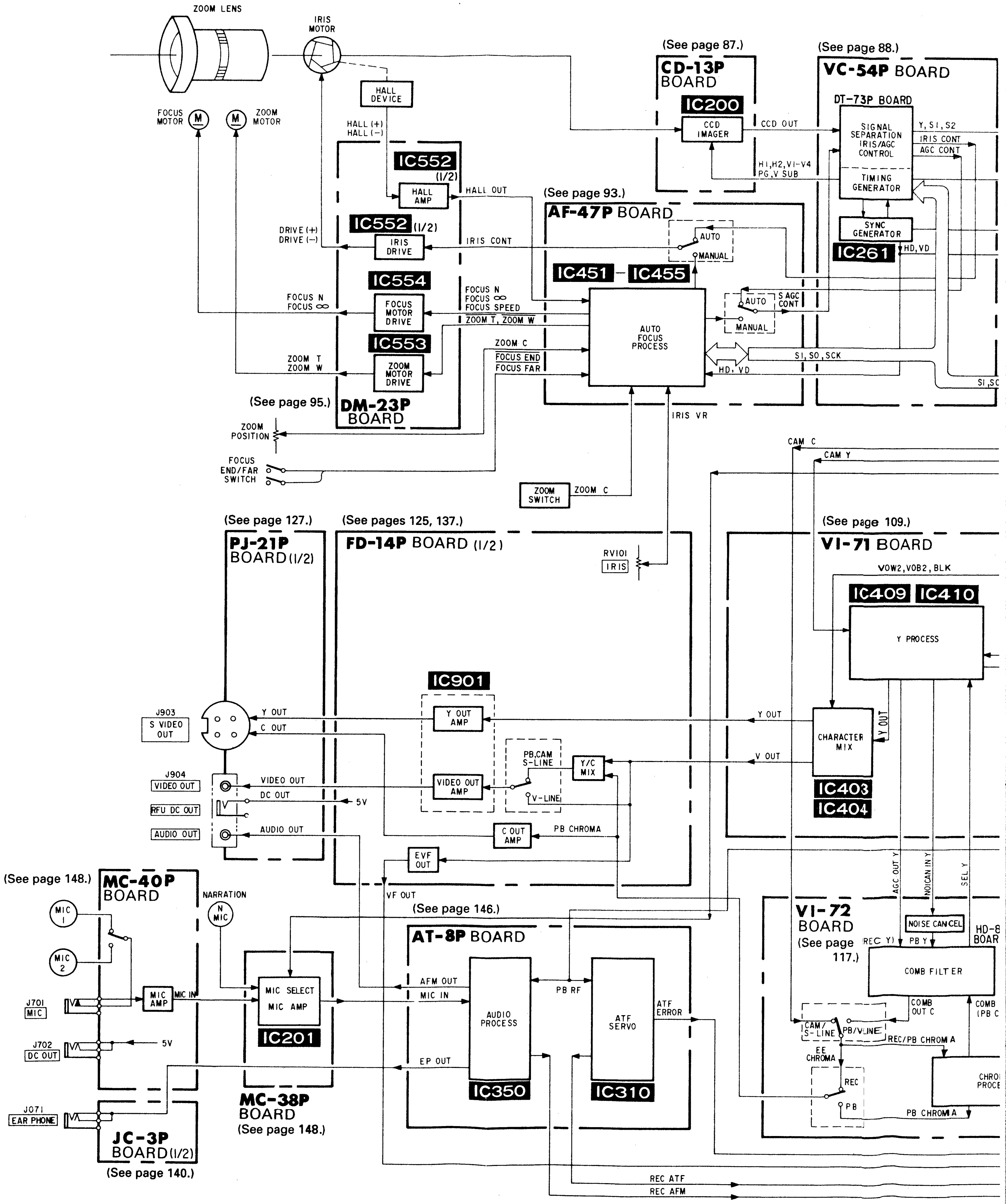

Three connectors CN452 3P, CN453 3P, CN456 2P
AF-47 board
Two screws (BTP2X5)
One screw (B2X3)
Ground wire
Flat wire CN451 20P
❷ Remove CD-13 lid.
❶ One screw (B2X3)
DM-23 board
Two connectors for each CN553, CN554
Flexible board CN552 8P
❹ One screw (BTP2X5)
❸ 2 screws (B2X16)
❺ CD heat radiation plate

SECTION 3
DIAGRAMS

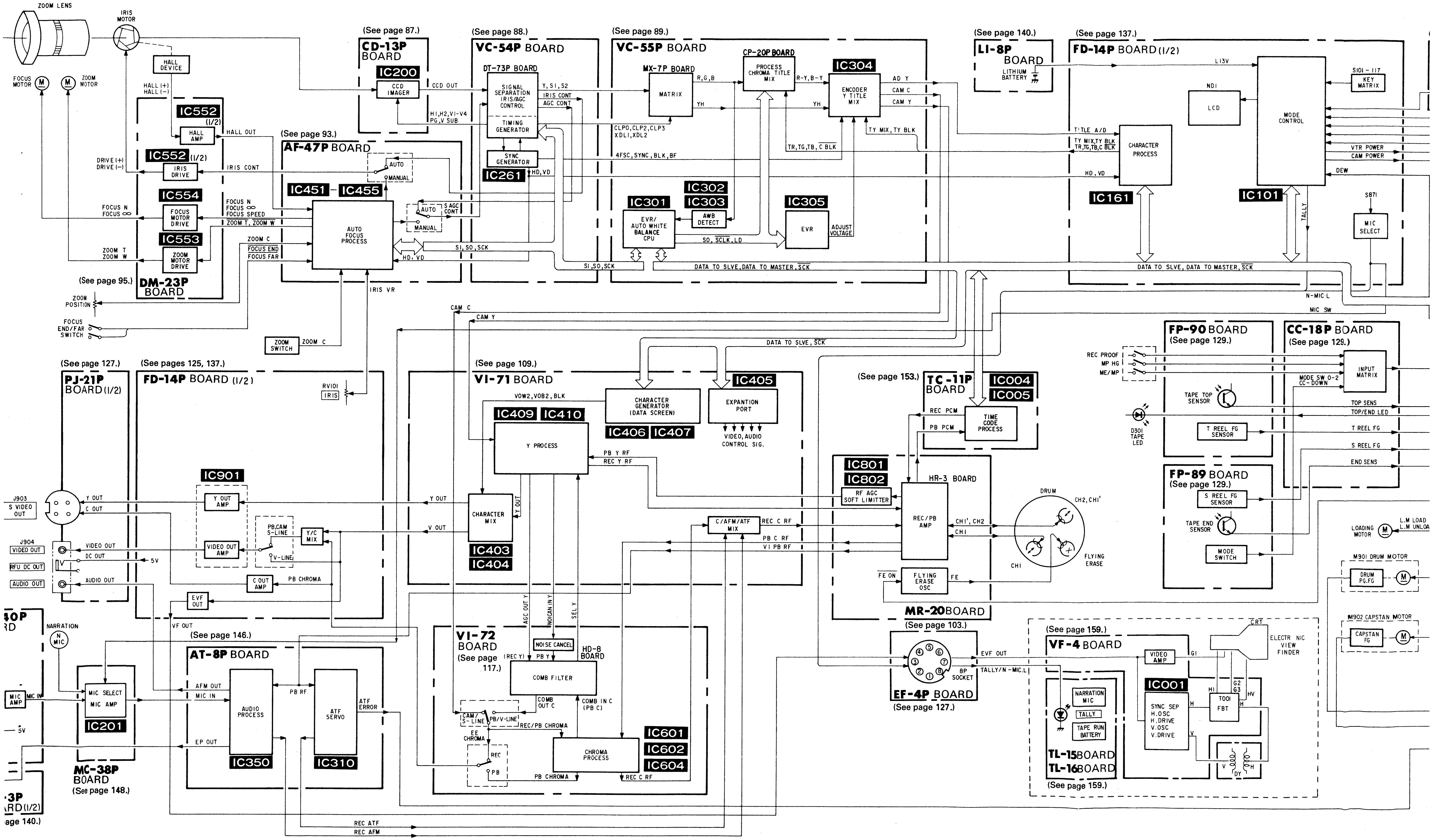
3-1. CIRCUIT BOARDS LOCATION

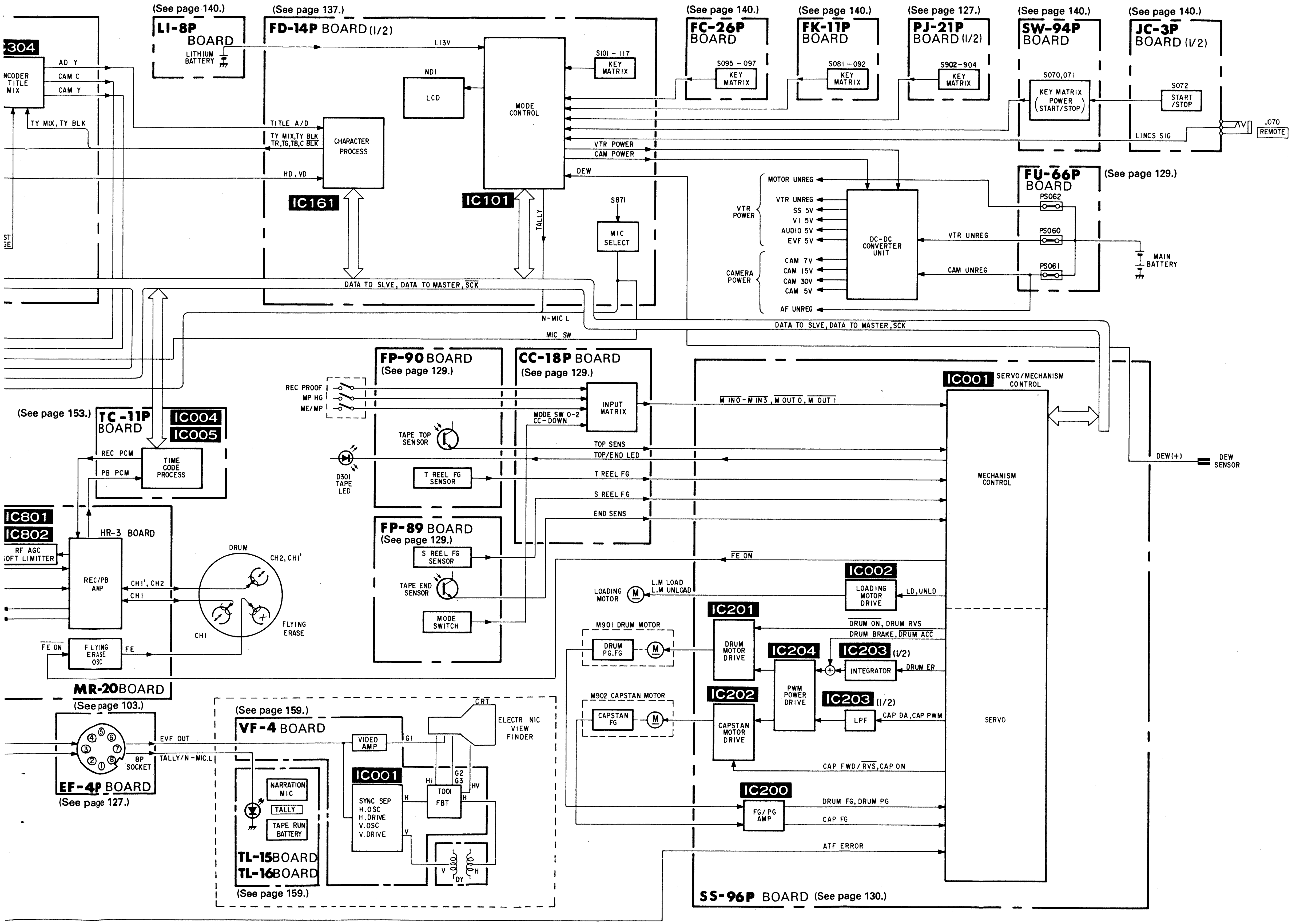

MC-40P
(MIC AMP)
JC-3P
(EXT JACK)
SW-94P
(REC/STANDBY SW)
MR-20
(REC/PB AMP, REC Y/C / AFM/ATF MIX)
HR-3P
(REC/PB AMP)
MC-38P
(NARATION/MIC AMP/SW)
LI-8P
(LITHIUM BATTERY)
SS-96P
(SERVO, SYSTEM CONTROL)
VI-71
(Y/C PROCESS)
VI-72
(Y/C PROCESS)
AT-8P
(ATF/AFM PROCESS)
FU-66P
(BATTERY TERMINAL)
HD-8P
(COMB FILTER)
TL-15
(LED)
DM-23P
(FOCUS/IRIS/ ZOOM MOTOR DRIVE)
AF-47P
(AUTO FOCUS)
FC-26P
(EDIT SERCH)
TL-16
(LED)
VC-54P
(SYNC GEN, TIMING GEN.)
VF-4
(VIEWFINDER)
EF-4P
(VIEWFINDER TERMINAL)
FK-11P
(FUNCTION SW POWER SW)
VC-55P
(CAMERA PROCESS, AUTO WHITE BALANCE, ENCODER)
MX-7P
(CAMERA MATRIX)
CC-18P
(RELAY)
DT-73P
(TIMING GENERATOR CCD DRIVE)
FD-14P
(VIDEO AMP, MODE CONTROL)
CP-20P
(CAMERA PROCESS)
PJ-21P
(IN/OUT TERMINAL)
TC-11P
(TIME CODE)
CD-13P
(CCD IMAGER)

3-2. OVERALL BLOCK DIAGRAM

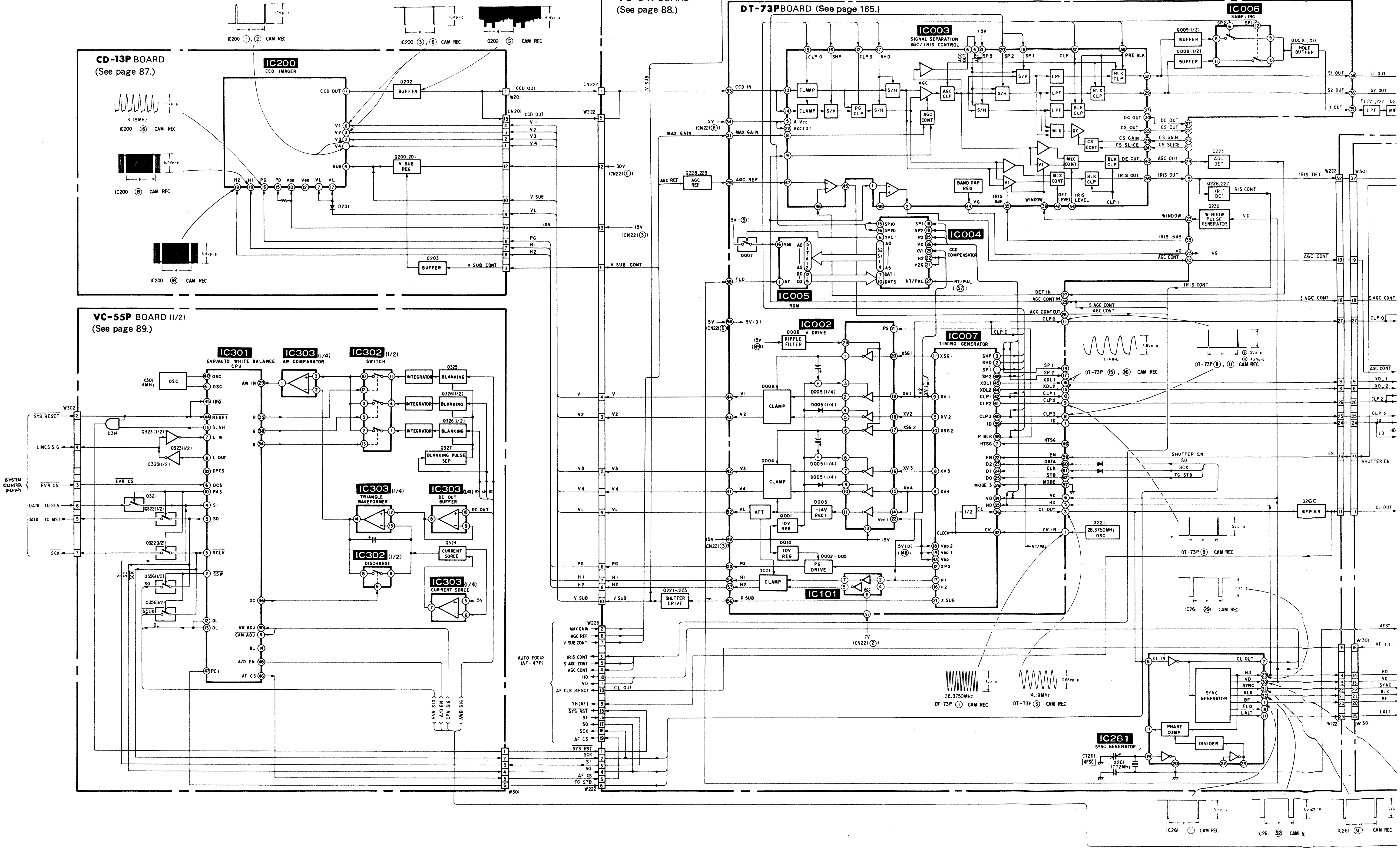

ZOOM LENS
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
HALL DEVICE
HALL (+)
HALL (–)
(See page 87.)
CD-13P BOARD
IC200
CCD IMAGER
CCD OUT
H1,H2,V1-V4
PG,V SUB
(See page 88.)
VC-54P BOARD
DT-73P BOARD
SIGNAL SEPARATION IRIS/AGC CONTROL
TIMING GENERATOR
Y,S1,S2
IRIS CONT
AGC CONT
SYNC GENERATOR
IC261
HD,VD
IC552
(1/2)
HALL AMP
HALL OUT
IC552 (1/2)
IRIS DRIVE
DRIVE (+)
DRIVE (–)
IRIS CONT
(See page 93.)
AF-47P BOARD
AUTO
MANUAL
IC451 - IC455
IC554
FOCUS MOTOR DRIVE
FOCUS N
FOCUS ∞
FOCUS SPEED
ZOOM T, ZOOM W
S AGC CONT
AUTO FOCUS PROCESS
IC553
ZOOM MOTOR DRIVE
ZOOM T
ZOOM W
ZOOM C
FOCUS END
FOCUS FAR
HD, VD
S1,S0,SCK
S1,SC
(See page 95.)
DM-23P BOARD
ZOOM POSITION
FOCUS END/FAR SWITCH
IRIS VR
ZOOM SWITCH
ZOOM C
CAM C
CAM Y
(See page 127.)
PJ-21P BOARD (1/2)
(See pages 125, 137.)
FD-14P BOARD (1/2)
RV101
IRIS
(See page 109.)
VI-71 BOARD
VOW2,VOB2,BLK
IC409
IC410
Y PROCESS
IC901
J903
S VIDEO OUT
Y OUT
C OUT
Y OUT AMP
PB,CAM
S-LINE
Y/C MIX
V-LINE
J904
VIDEO OUT
DC OUT
RFU DC OUT
AUDIO OUT
5V
VIDEO OUT AMP
C OUT AMP
PB CHROMA
EVF OUT
VF OUT
Y OUT
V OUT
CHARACTER MIX
IC403
IC404
AGC OUT Y
NOICAN IN Y
SEL Y
(See page 148.)
MC-40P BOARD
MIC 1
MIC 2
NARRATION
N MIC
MIC AMP
MIC IN
J701
MIC
J702
DC OUT
J071
EAR PHONE
MIC SELECT
MIC AMP
IC201
MC-38P BOARD
(See page 148.)
JC-3P BOARD (1/2)
(See page 140.)
(See page 146.)
AT-8P BOARD
AFM OUT
MIC IN
EP OUT
AUDIO PROCESS
IC350
PB RF
ATF SERVO
ATF ERROR
IC310
VI-72 BOARD
(See page 117.)
REC Y
PB Y
NOISE CANCEL
HD-8 BOAR
COMB FILTER
COMB OUT C
COMB (PB C
CAM/S-LINE
PB/V-LINE
REC/PB CHROMA
EE CHROMA
REC
PB
PB CHROMA
CHRO PROCE
REC ATF
REC AFM

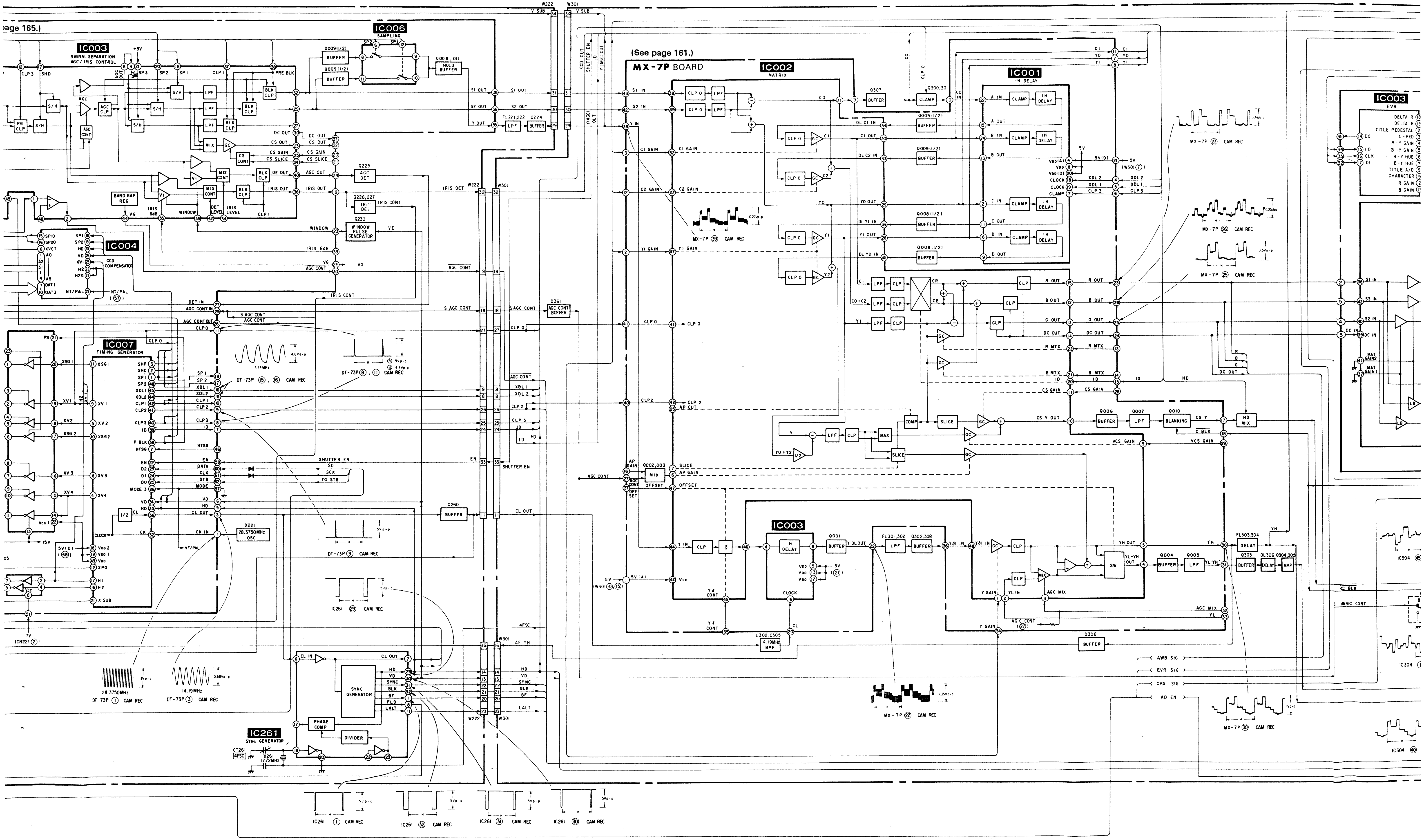
RALL BLOCK DIAGRAM

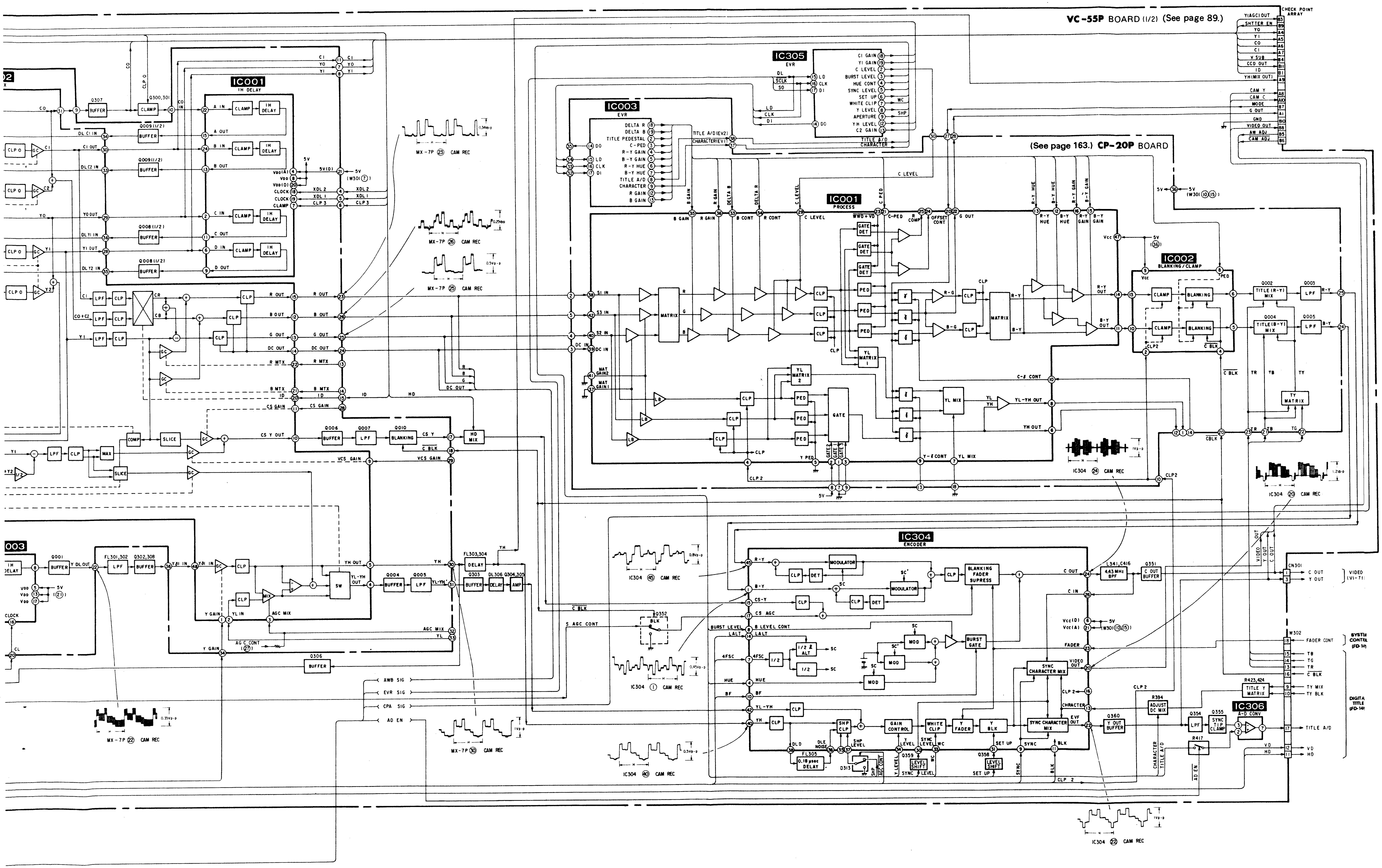

ZOOM LENS
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
HALL DEVICE
HALL (+)
HALL (−)
IC552 (1/2)
HALL AMP
HALL OUT
IC552 (1/2)
IRIS DRIVE
IRIS CONT
DRIVE (+)
DRIVE (−)
IC554
FOCUS MOTOR DRIVE
FOCUS N
FOCUS ∞
FOCUS SPEED
ZOOM T, ZOOM W
IC553
ZOOM MOTOR DRIVE
ZOOM C
FOCUS END
FOCUS FAR
ZOOM T
ZOOM W
(See page 95.)
DM-23P BOARD
ZOOM POSITION
FOCUS END/FAR SWITCH
ZOOM SWITCH
ZOOM C
(See page 87.)
CD-13P BOARD
IC200
CCD IMAGER
CCD OUT
H1,H2,V1-V4
PG,V SUB
(See page 93.)
AF-47P BOARD
IC451 – IC455
AUTO
MANUAL
AUTO
S AGC CONT
MANUAL
AUTO FOCUS PROCESS
SI, SO, SCK
HD, VD
IRIS VR
(See page 88.)
VC-54P BOARD
DT-73P BOARD
SIGNAL SEPARATION IRIS/AGC CONTROL
Y, S1, S2
IRIS CONT
AGC CONT
TIMING GENERATOR
SYNC GENERATOR
IC261
HD, VD
(See page 89.)
VC-55P BOARD
MX-7P BOARD
MATRIX
R,G,B
YH
CLPO,CLP2,CLP3
XDL1,XDL2
4FSC,SYNC,BLK,BF
CP-20P BOARD
PROCESS CHROMA TITLE MIX
R-Y,B-Y
IC304
ENCODER Y TITLE MIX
YH
AD Y
CAM C
CAM Y
TY MIX, TY BLK
TR,TG,TB,C BLK
IC302
IC303
AWB DETECT
IC301
EVR/AUTO WHITE BALANCE CPU
IC305
EVR
ADJUST VOLTAGE
SO, SCLK, LD
SI,SO,SCK
DATA TO SLVE, DATA TO MASTER, SCK
(See page 140.)
LI-8P BOARD
LITHIUM BATTERY
(See page 137.)
FD-14P BOARD (1/2)
L13V
S101 - 117
KEY MATRIX
ND1
LCD
MODE CONTROL
TITLE A/D
TY MIX,TY BLK
TR,TG,TB,C BLK
CHARACTER PROCESS
VTR POWER
CAM POWER
HD, VD
DEW
IC161
IC101
TALLY
S871
MIC SELECT
DATA TO SLVE, DATA TO MASTER, SCK
N-MIC L
MIC SW
CAM C
CAM Y
DATA TO SLVE, SCK
(See page 127.)
PJ-21P BOARD (1/2)
(See pages 125, 137.)
FD-14P BOARD (1/2)
RV101 IRIS
(See page 109.)
VI-71 BOARD
VOW2,VOB2, BLK
IC409 IC410
Y PROCESS
CHARACTER GENERATOR (DATA SCREEN)
IC406 IC407
IC405
EXPANTION PORT
VIDEO, AUDIO CONTROL SIG.
PB Y RF
REC Y RF
IC901
Y OUT AMP
Y OUT
C OUT
J903 S VIDEO OUT
Y OUT
V OUT
CHARACTER MIX
Y OUT
IC403
IC404
PB,CAM S-LINE
V-LINE
Y/C MIX
VIDEO OUT AMP
J904 VIDEO OUT
VIDEO OUT
DC OUT
5V
RFU DC OUT
AUDIO OUT
AUDIO OUT
C OUT AMP
PB CHROMA
EVF OUT
VF OUT
C/AFM/ATF MIX
REC C RF
PB C RF
V1 PB RF
40P
RD
NARRATION MIC
MIC AMP
MIC IN
5V
MIC SELECT
MIC AMP
IC201
MC-38P BOARD
(See page 148.)
3P
RD (1/2)
age 140.)
(See page 146.)
AT-8P BOARD
AFM OUT
MIC IN
EP OUT
AUDIO PROCESS
IC350
PB RF
ATF SERVO
ATF ERROR
IC310
REC ATF
REC AFM
AGC OUT Y
NOICAN IN Y
SEL Y
VI-72 BOARD
(See page 117.)
(REC Y)
PB Y
NOISE CANCEL
HD-8 BOARD
COMB FILTER
COMB OUT C
COMB IN C (PB C)
CAM/S-LINE
PB/V-LINE
REC/PB CHROMA
EE CHROMA
REC
PB
CHROMA PROCESS
IC601
IC602
IC604
PB CHROMA
REC C RF
(See page 153.)
TC-11P BOARD
IC004
IC005
REC PCM
PB PCM
TIME CODE PROCESS
IC801
IC802
HR-3 BOARD
RF AGC SOFT LIMITTER
REC/PB AMP
CH1', CH2
CH1
DRUM
CH2, CH1'
CH1
FLYING ERASE
FE ON
FLYING ERASE OSC
FE
MR-20 BOARD
(See page 103.)
EF-4P BOARD
(See page 127.)
8P SOCKET
EVF OUT
TALLY/N-MIC L
REC PROOF
MP HG
ME/MP
D301 TAPE LED
FP-90 BOARD
(See page 129.)
TAPE TOP SENSOR
T REEL FG SENSOR
FP-89 BOARD
(See page 129.)
S REEL FG SENSOR
TAPE END SENSOR
MODE SWITCH
CC-18P BOARD
(See page 129.)
INPUT MATRIX
MODE SW 0-2
CC-DOWN
TOP SENS
TOP/END LED
T REEL FG
S REEL FG
END SENS
LOADING MOTOR
L.M LOAD
L.M UNLOA
M901 DRUM MOTOR
DRUM PG,FG
M902 CAPSTAN MOTOR
CAPSTAN FG
(See page 159.)
VF-4 BOARD
VIDEO AMP
G1
CRT
ELECTRONIC VIEW FINDER
IC001
NARRATION MIC
TALLY
TAPE RUN BATTERY
SYNC SEP
H.OSC
H.DRIVE
V.OSC
V.DRIVE
H1
G2
G3
HV
T001 FBT
H
V
DY
TL-15 BOARD
TL-16 BOARD
(See page 159.)


(See page 140.)
LI-8P BOARD
LITHIUM BATTERY
(See page 137.)
FD-14P BOARD (1/2)
L13V
ND1
LCD
MODE CONTROL
S101 – 117
KEY MATRIX
TITLE A/D
TY MIX,TY BLK
TR,TG,TB,C BLK
HD, VD
CHARACTER PROCESS
IC161
IC101
VTR POWER
CAM POWER
DEW
S871
MIC SELECT
TALLY
DATA TO SLVE, DATA TO MASTER, SCK
N-MIC-L
MIC SW
304
AD Y
CAM C
CAM Y
NCODER TITLE MIX
TY MIX, TY BLK
ST
SE
(See page 140.)
FC-26P BOARD
S095 – 097
KEY MATRIX
(See page 140.)
FK-11P BOARD
S081 – 092
KEY MATRIX
(See page 127.)
PJ-21P BOARD (1/2)
S902 – 904
KEY MATRIX
(See page 140.)
SW-94P BOARD
S070,071
KEY MATRIX (POWER START/STOP)
(See page 140.)
JC-3P BOARD (1/2)
S072
START /STOP
LINCS SIG
J070
REMOTE
FU-66P BOARD
(See page 129.)
PS062
PS060
PS061
MAIN BATTERY
VTR UNREG
CAM UNREG
DC-DC CONVERTER UNIT
MOTOR UNREG
VTR UNREG
SS 5V
VI 5V
AUDIO 5V
EVF 5V
VTR POWER
CAM 7V
CAM 15V
CAM 30V
CAM 5V
CAMERA POWER
AF UNREG
DATA TO SLVE, DATA TO MASTER, SCK
FP-90 BOARD
(See page 129.)
REC PROOF
MP HG
ME/MP
TAPE TOP SENSOR
D301 TAPE LED
T REEL FG SENSOR
CC-18P BOARD
(See page 129.)
INPUT MATRIX
MODE SW 0-2
CC-DOWN
TOP SENS
TOP/END LED
T REEL FG
S REEL FG
END SENS
FP-89 BOARD
(See page 129.)
S REEL FG SENSOR
TAPE END SENSOR
MODE SWITCH
(See page 153.)
TC-11P BOARD
IC004
IC005
REC PCM
PB PCM
TIME CODE PROCESS
IC801
IC802
HR-3 BOARD
RF AGC
SOFT LIMITTER
REC/PB AMP
CH1', CH2
CH1
DRUM
CH2, CH1'
CH1
FLYING ERASE
FE ON
FLYING ERASE OSC
FE
MR-20BOARD
(See page 103.)
EVF OUT
TALLY/N-MIC.L
8P SOCKET
EF-4P BOARD
(See page 127.)
(See page 159.)
VF-4 BOARD
VIDEO AMP
G1
CRT
ELECTRONIC VIEW FINDER
IC001
SYNC SEP
H.OSC
H.DRIVE
V.OSC
V.DRIVE
H
H1
G2
G3
HV
T001 FBT
V
DY
NARRATION MIC
TALLY
TAPE RUN BATTERY
TL-15BOARD
TL-16BOARD
(See page 159.)
IC001
SERVO/MECHANISM CONTROL
M IN0 - M IN3, M OUT 0, M OUT 1
MECHANISM CONTROL
DEW(+)
DEW SENSOR
FE ON
IC002
LOADING MOTOR
L.M LOAD
L.M UNLOAD
LOADING MOTOR DRIVE
LD, UNLD
IC201
M901 DRUM MOTOR
DRUM PG,FG
M
DRUM MOTOR DRIVE
DRUM ON, DRUM RVS
DRUM BRAKE, DRUM ACC
IC204
IC203 (1/2)
PWM POWER DRIVE
INTEGRATOR
DRUM ER
IC202
M902 CAPSTAN MOTOR
CAPSTAN FG
CAPSTAN MOTOR DRIVE
IC203 (1/2)
LPF
CAP DA, CAP PWM
SERVO
CAP FWD/RVS, CAP ON
IC200
FG/PG AMP
DRUM FG, DRUM PG
CAP FG
ATF ERROR
SS-96P BOARD (See page 130.)

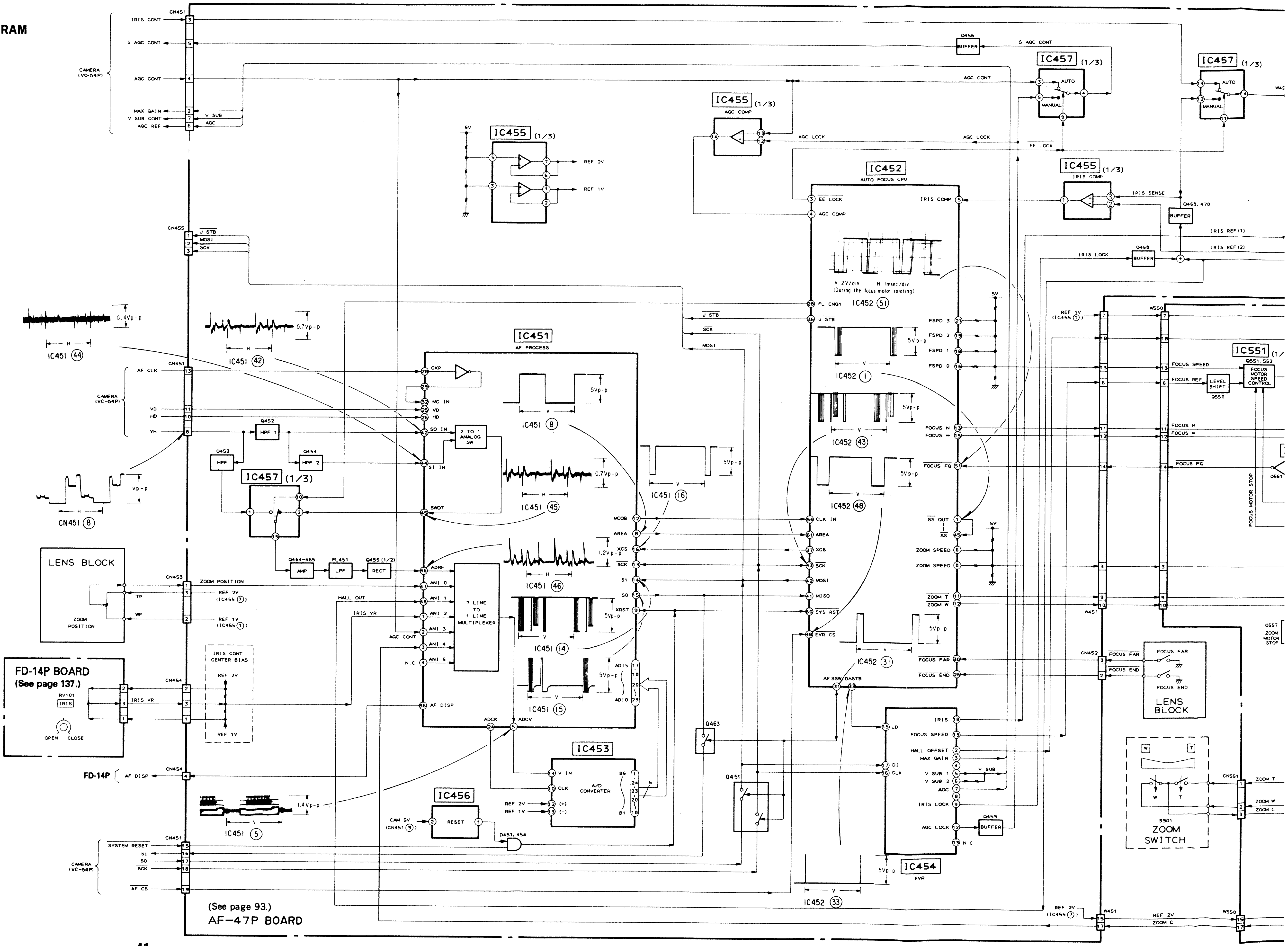
3-3. CAMERA BLOCK DIAGRAM

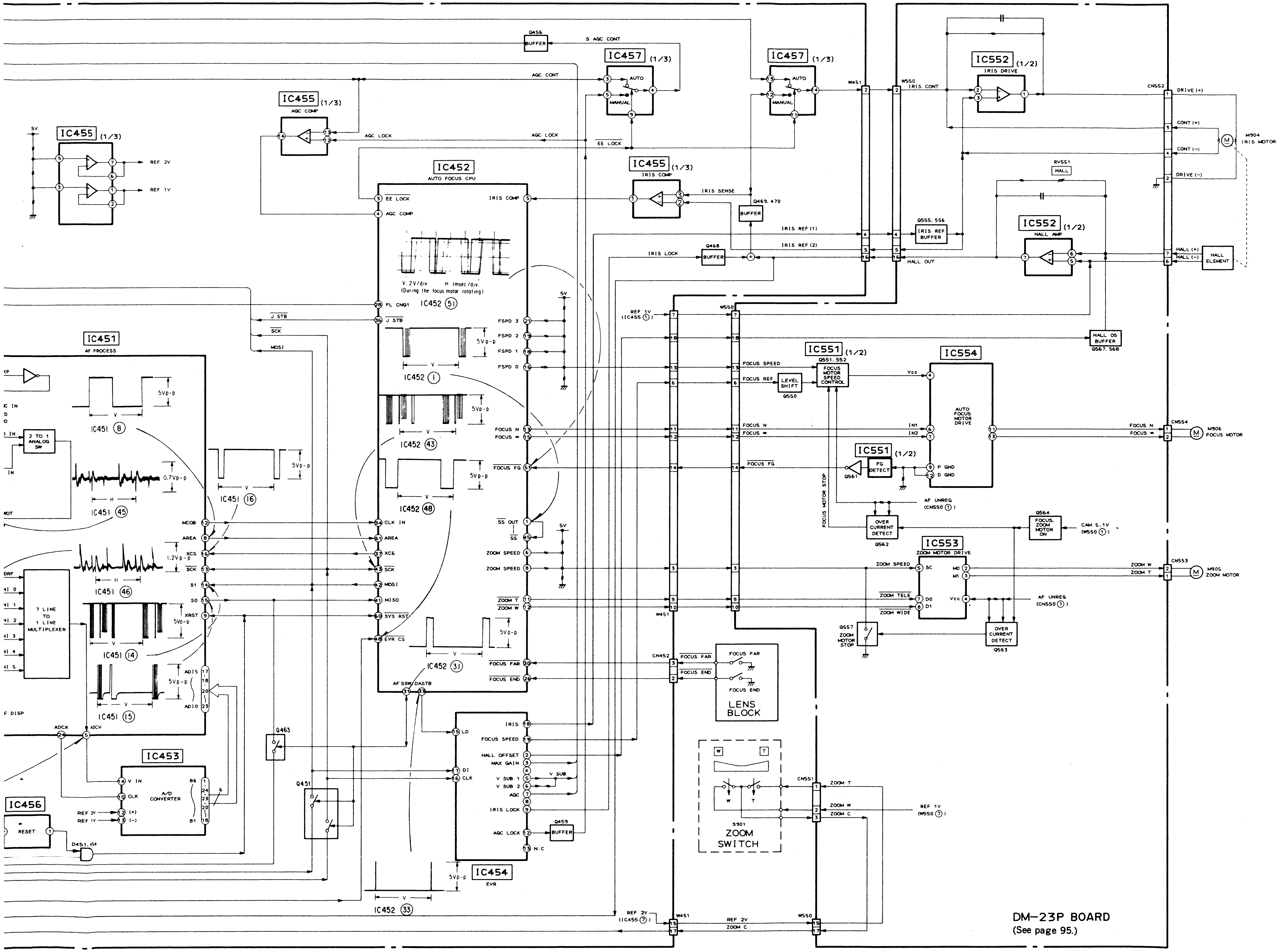

CD-13P BOARD
(See page 87.)
IC200
CCD IMAGER
BUFFER
V SUB REG
IC200 ①, ② CAM REC
IC200 ③, ⑥ CAM REC
Q202 ⑤ CAM REC
IC200 ⑯ CAM REC
IC200 ⑲ CAM REC
IC200 ⑱ CAM REC
14.19MHz
D201
VC-55P BOARD (1/2)
(See page 89.)
IC301
EVR/AUTO WHITE BALANCE CPU
IC303 (1/4)
AW COMPARATOR
IC302 (1/2)
SWITCH
INTEGRATOR
BLANKING
BLANKING PULSE SEP
TRIANGLE WAVEFORMER
DC OUT BUFFER
DISCHARGE
CURRENT SORCE
X301 4MHz
OSC
SYSTEM CONTROL (FD-14P)
SYS RESET
LINCS SIG
EVR CS
DATA TO SLV
DATA TO MST
SCK
EVR SIG
A/D EN
CPA SIG
AWB SIG
AUTO FOCUS (AF-47P)
VC-54P BOARD
(See page 88.)
DT-73P BOARD (See page 165.)
IC003
SIGNAL SEPARATION AGC/IRIS CONTROL
IC006
SAMPLING
HOLD BUFFER
IC004
CCD COMPENSATOR
IC005
ROM
IC002
V DRIVE
RIPPLE FILTER
IC007
TIMING GENERATOR
IC101
CLAMP
ATT
10V REG
-14V RECT
PG DRIVE
SHUTTER DRIVE
AGC REF
AGC DET
IRIS DET
WINDOW PULSE GENERATOR
BAND GAP REG
X221 28.3750MHz OSC
IC261
SYNC GENERATOR
PHASE COMP
DIVIDER
X261 17.72MHz
28.3750MHz DT-73P ① CAM REC
14.19MHz DT-73P ③ CAM REC
DT-73P ⑮, ⑯ CAM REC
DT-73P ⑧, ⑪ CAM REC
DT-73P ⑨ CAM REC
IC261 ㉙ CAM REC
IC261 ① CAM REC
IC261 ㉜ CAM REC
IC261 ㉛ CAM REC
BUFFER
S1 OUT
S2 OUT
Y OUT
LPF


page 165.)
IC003
SIGNAL SEPARATION AGC / IRIS CONTROL
IC006
SAMPLING
IC004
CCD COMPENSATOR
IC007
TIMING GENERATOR
IC261
SYNC GENERATOR
SYNC GENERATOR
PHASE COMP
DIVIDER
BAND GAP REG
Q009(1/2) BUFFER
Q008, 011 HOLD BUFFER
Q225 AGC DET
Q226,227 IRIS DET
Q230 WINDOW PULSE GENERATOR
Q361 AGC CONT BUFFER
Q260 BUFFER
X221 28.3750MHz OSC
W222
W301
(See page 161.)
MX-7P BOARD
IC002
MATRIX
IC001
1H DELAY
IC003
1H DELAY
IC003
EVR
Q307 BUFFER
Q300,301 CLAMP
Q006 BUFFER
Q007 LPF
Q010 BLANKING
Q001 BUFFER
FL301,302 LPF
Q302,308 BUFFER
Q004 BUFFER
Q005 LPF
FL303,304 DELAY
Q303 BUFFER
DL306 DELAY
Q304,305 AMP
Q306 BUFFER
Q002,003 MIX
L302,C305 14.19MHz BPF
HD MIX
SW
COMP
SLICE
MAX
AWB SIG
EVR SIG
CPA SIG
AD EN
DT-73P ⑮, ⑯ CAM REC
DT-73P ⑧, ⑪ CAM REC
DT-73P ⑨ CAM REC
IC261 ㉙ CAM REC
28.3750MHz
DT-73P ① CAM REC
14.19MHz
DT-73P ③ CAM REC
IC261 ① CAM REC
IC261 ㉜ CAM REC
IC261 ㉛ CAM REC
IC261 ㉚ CAM REC
MX-7P ㊴ CAM REC
MX-7P ㉒ CAM REC
MX-7P ㉓ CAM REC
MX-7P ㉖ CAM REC
MX-7P ㉕ CAM REC
MX-7P ㉚ CAM REC
IC304 ④
IC304 ㊵


VC-55P BOARD (1/2) (See page 89.)
(See page 163.) CP-20P BOARD
CHECK POINT ARRAY
IC001 1H DELAY
IC003 EVR
IC305 EVR
IC001 PROCESS
IC002 BLANKING/CLAMP
IC304 ENCODER
IC306 A-D CONV
MX-7P ㉓ CAM REC
MX-7P ㉖ CAM REC
MX-7P ㉕ CAM REC
MX-7P ㉒ CAM REC
MX-7P ㉚ CAM REC
IC304 ㉔ CAM REC
IC304 ⑳ CAM REC
IC304 ㊺ CAM REC
IC304 ① CAM REC
IC304 ㊵ CAM REC
IC304 ㉒ CAM REC
CN301
VIDEO (VI-71)
SYSTEM CONTROL (FD-14)
DIGITAL TITLE (FD-14)
C OUT
Y OUT
FADER CONT
TITLE A/D
VD
HD

3-4. AUTO FOCUS BLOCK DIAGRAM

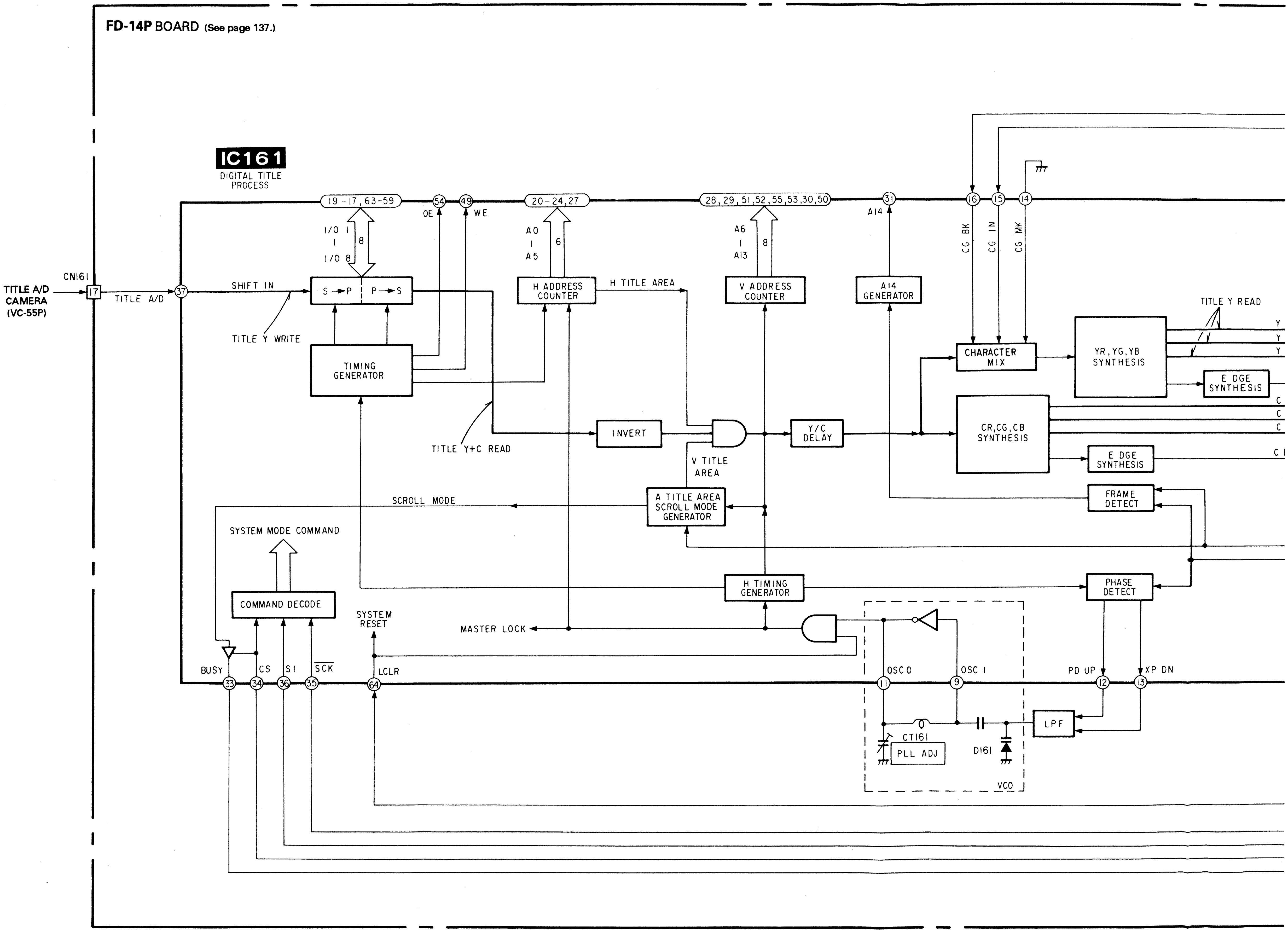

CAMERA (VC-54P)
CN451
IRIS CONT
S AGC CONT
AGC CONT
MAX GAIN
V SUB CONT
AGC REF
V SUB
AGC
Q456 BUFFER
S AGC CONT
IC457 (1/3)
AUTO
MANUAL
IC455 (1/3)
AGC COMP
AGC LOCK
EE LOCK
REF 2V
REF 1V
5V
IC452
AUTO FOCUS CPU
EE LOCK
AGC COMP
IRIS COMP
IRIS CONT
IRIS SENSE
Q469, 470 BUFFER
Q468 BUFFER
IRIS LOCK
IRIS REF (1)
IRIS REF (2)
CN455
J STB
MOSI
SCK
V 2V/div H 1msec/div (During the focus motor rotating)
IC452 (51)
FL CNG1
J STB
FSPD 3
FSPD 2
FSPD 1
FSPD 0
IC452 (1)
5Vp-p
IC452 (43)
IC452 (48)
FOCUS N
FOCUS ⊕
FOCUS FG
SS OUT
SS
ZOOM SPEED
ZOOM T
ZOOM W
CLK IN
AREA
XCS
SCK
MOSI
MISO
SYS RST
EVR CS
FOCUS FAR
FOCUS END
AF SSW/DASTB
IC452 (31)
IC451 (44)
0.4Vp-p
IC451 (42)
0.7Vp-p
H
AF CLK
VD
HD
YH
CN451 (8)
1Vp-p
Q452 HPF 1
Q453 HPF
Q454 HPF 2
IC457 (1/3)
IC451
AF PROCESS
CKP
MC IN
VD
HD
SO IN
SI IN
SWOT
2 TO 1 ANALOG SW
IC451 (8)
IC451 (45)
IC451 (16)
IC451 (46)
1.2Vp-p
IC451 (14)
IC451 (15)
MCOB
AREA
XCS
SCK
SI
SO
XRST
AD15
AD10
Q464-465 AMP
FL451 LPF
Q455 (1/2) RECT
ADRF
ANI 0
ANI 1
ANI 2
ANI 3
ANI 4
ANI 5
7 LINE TO 1 LINE MULTIPLEXER
AF DISP
ADCK
ADCV
LENS BLOCK
ZOOM POSITION
TP
WP
CN453
REF 2V (IC455 (7))
REF 1V (IC455 (1))
HALL OUT
IRIS VR
AGC CONT
N.C
IRIS CONT CENTER BIAS
FD-14P BOARD (See page 137.)
RV101 IRIS
OPEN CLOSE
CN454
FD-14P AF DISP
IC451 (5)
1.4Vp-p
IC453
A/D CONVERTER
V IN
CLK
REF 2V (+)
REF 1V (−)
B6
B1
IC456
RESET
CAM 5V (CN451 (9))
D451, 454
SYSTEM RESET
SI
SO
SCK
AF CS
Q463
Q451
IC454
EVR
LD
DI
CLK
IRIS
FOCUS SPEED
HALL OFFSET
MAX GAIN
V SUB 1
V SUB 2
AGC
IRIS LOCK
AGC LOCK
N.C
Q459 BUFFER
IC452 (33)
(See page 93.)
AF-47P BOARD
REF 1V (IC455 (1))
W550
W451
REF 2V (IC455 (7))
IC551
Q551, 552 FOCUS MOTOR SPEED CONTROL
FOCUS SPEED
FOCUS REF
LEVEL SHIFT
Q550
FOCUS N
FOCUS ⊕
FOCUS FG
FOCUS MOTOR STOP
Q561
Q557 ZOOM MOTOR STOP
CN452
FOCUS FAR
FOCUS END
LENS BLOCK
S901 ZOOM SWITCH
W T
CN551
ZOOM T
ZOOM W
ZOOM C
REF 2V
ZOOM C



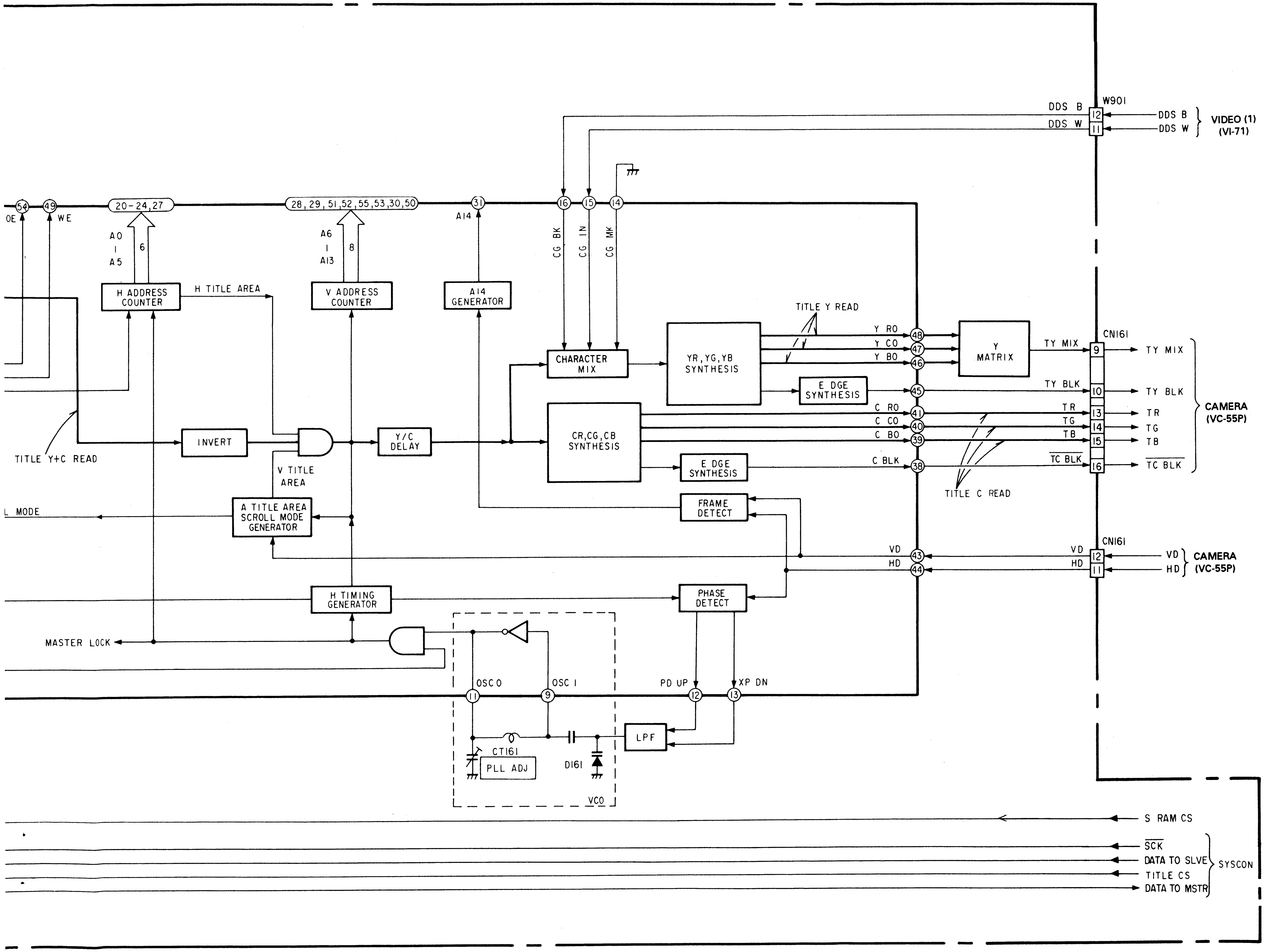
IC455 (1/3)
REF 2V
REF 1V
5V
IC455 (1/3)
AGC COMP
Q456 BUFFER
S AGC CONT
AGC CONT
IC457 (1/3)
AUTO
MANUAL
AGC LOCK
EE LOCK
IC452
AUTO FOCUS CPU
EE LOCK
AGC COMP
IRIS COMP
IC455 (1/3)
IRIS COMP
IRIS SENSE
Q469, 470 BUFFER
IRIS REF (1)
IRIS REF (2)
IRIS LOCK
Q468 BUFFER
V. 2V/div H 1msec/div.
(During the focus motor rotating)
IC452 (51)
FL CNG1
J STB
SCK
MOSI
FSPD 3
FSPD 2
FSPD 1
FSPD 0
5Vp-p
IC452 ①
IC452 (43)
FOCUS N
FOCUS ≡
FOCUS FG
IC452 (48)
SS OUT
SS
ZOOM SPEED
ZOOM T
ZOOM W
IC452 (31)
FOCUS FAR
FOCUS END
AF SSW DASTB
CLK IN
AREA
XCS
SCK
MOSI
MISO
SYS RST
EVR CS
IC451
AF PROCESS
2 TO 1 ANALOG SW
IC451 ⑧
IC451 (45)
0.7Vp-p
IC451 (16)
IC451 (46)
1.2Vp-p
7 LINE TO 1 LINE MULTIPLEXER
IC451 (14)
IC451 (15)
MCOB
AREA
XCS
SCK
S1
S0
XRST
AD15
AD10
ADCK
ADCV
F DISP
IC453
A/D CONVERTER
V IN
CLK
REF 2V
REF 1V
B6
B1
IC456
RESET
D451, 454
Q463
Q451
IC454
EVR
LD
DI
CLK
IRIS
FOCUS SPEED
HALL OFFSET
MAX GAIN
V SUB 1
V SUB 2
AGC
IRIS LOCK
AGC LOCK
N.C
V SUB
Q459 BUFFER
IC452 (33)
W451
W550
IRIS CONT
IC552 (1/2)
IRIS DRIVE
CN552
DRIVE (+)
CONT (+)
CONT (−)
DRIVE (−)
M904 IRIS MOTOR
RV551 HALL
IC552 (1/2)
HALL AMP
Q555, 556 IRIS REF BUFFER
HALL OUT
HALL (+)
HALL (−)
HALL ELEMENT
REF 1V (IC455 ①)
HALL OS BUFFER Q567, 568
IC551 (1/2)
Q551, 552 FOCUS MOTOR SPEED CONTROL
FOCUS SPEED
FOCUS REF
LEVEL SHIFT Q550
IC554
AUTO FOCUS MOTOR DRIVE
Vcc
IN1
IN2
P GND
D GND
CN554
M906 FOCUS MOTOR
IC551 (1/2)
FG DETECT
Q561
FOCUS MOTOR STOP
AF UNREG (CN550 ①)
OVER CURRENT DETECT Q562
Q564 FOCUS, ZOOM MOTOR ON
CAM 5.1V (W550 ①)
IC553
ZOOM MOTOR DRIVE
SC
M0
M1
D0
D1
ZOOM TELE
ZOOM WIDE
CN553
M905 ZOOM MOTOR
AF UNREG (CN550 ①)
OVER CURRENT DETECT Q563
Q557 ZOOM MOTOR STOP
CN452
LENS BLOCK
S901 ZOOM SWITCH
W
T
CN551
ZOOM T
ZOOM W
ZOOM C
REF 1V (W550 ⑦)
REF 2V (IC455 ⑦)
REF 2V
ZOOM C

DM-23P BOARD
(See page 95.)

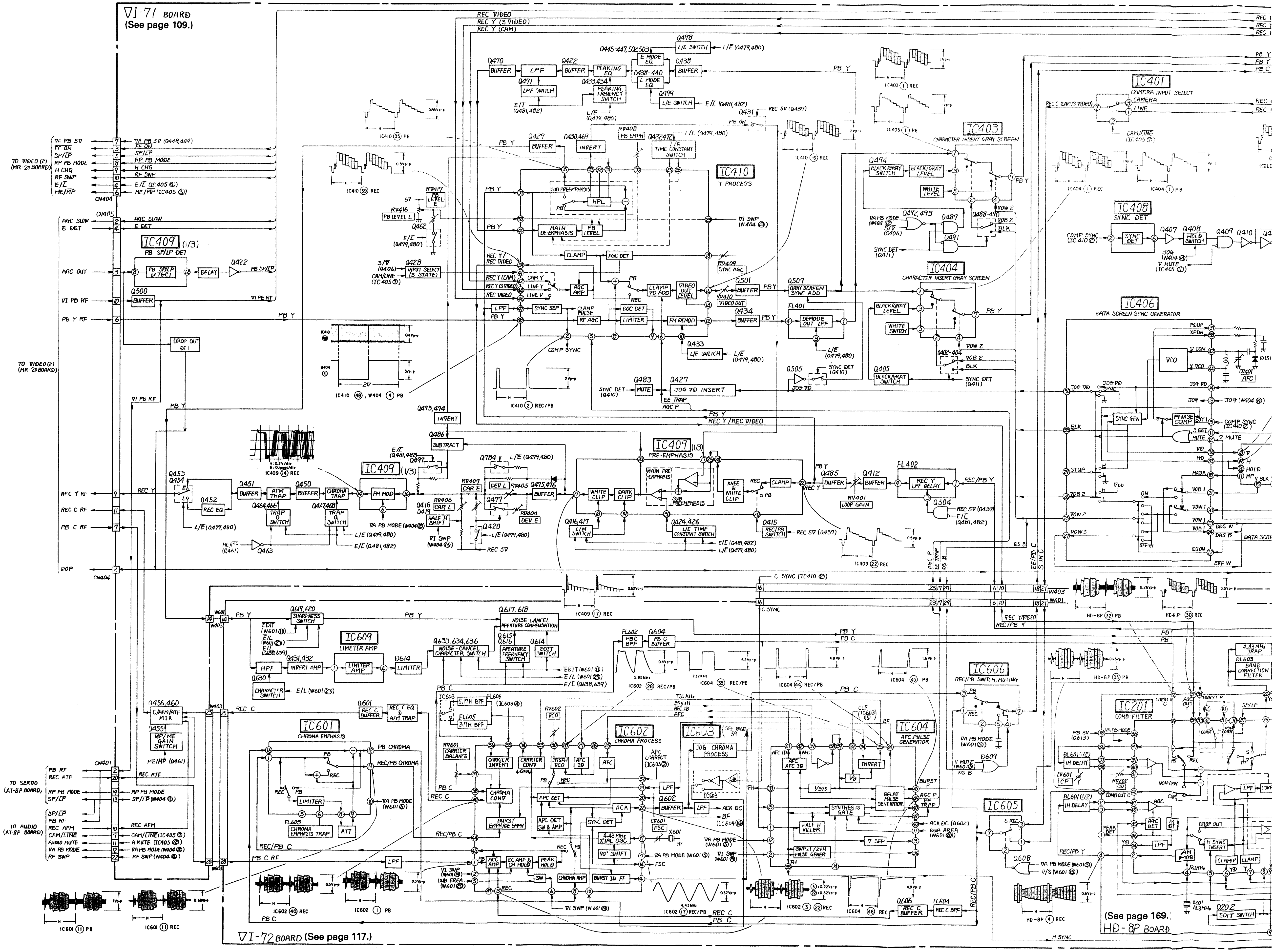
3-5. DIGITAL TITLER BLOCK DIAGRAM

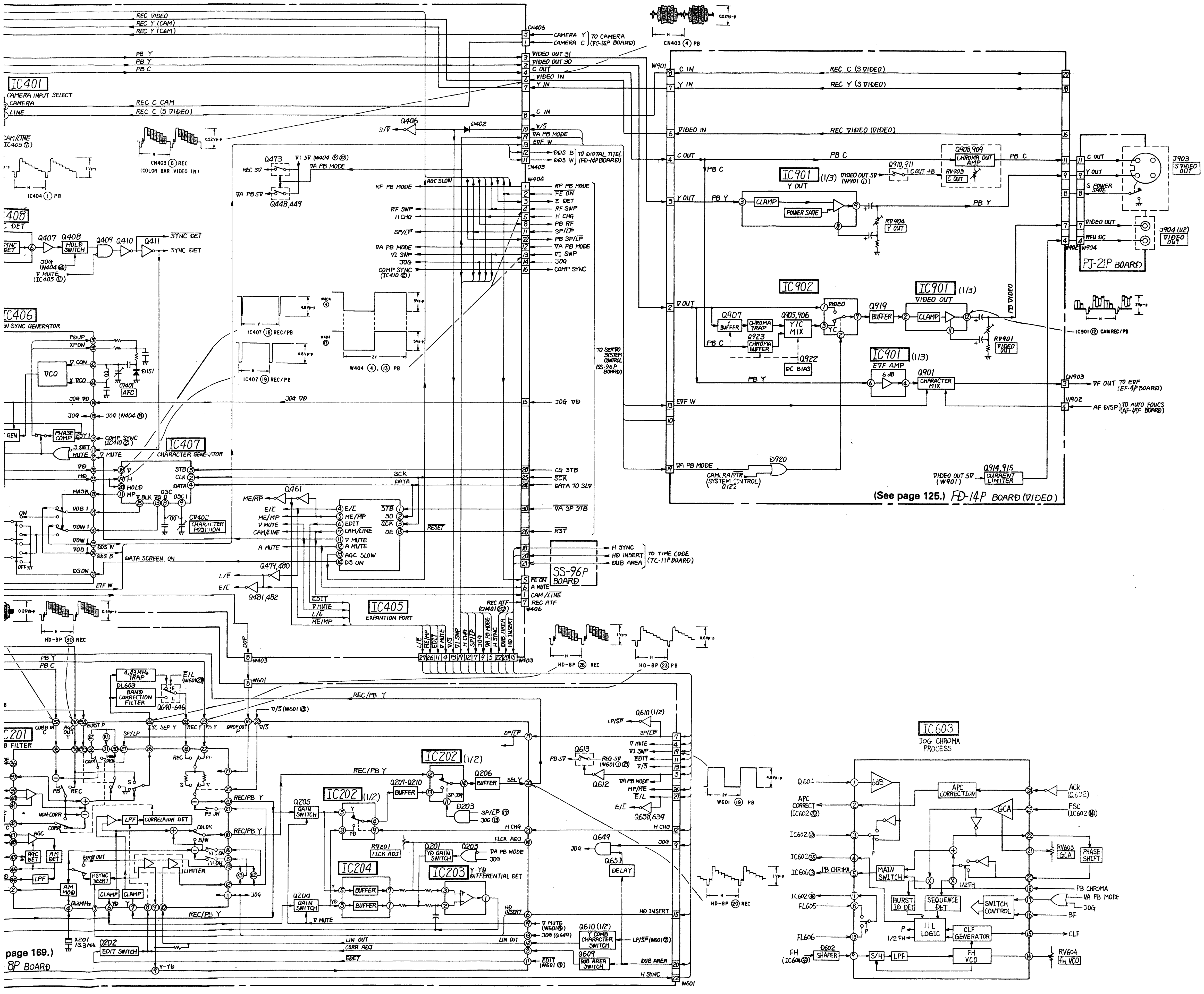


FD-14P BOARD (See page 137.)
IC161
DIGITAL TITLE PROCESS
TITLE A/D CAMERA (VC-55P)
CN161
17
TITLE A/D
37
SHIFT IN
TITLE Y WRITE
19 - 17, 63 - 59
54
49
OE
WE
I/O 1
I
I/O 8
8
S → P
P → S
TIMING GENERATOR
20 - 24, 27
A0
I
A5
6
H ADDRESS COUNTER
H TITLE AREA
28, 29, 51, 52, 55, 53, 30, 50
A6
I
A13
8
V ADDRESS COUNTER
31
A14
A14 GENERATOR
16
15
14
CG BK
CG IN
CG MK
CHARACTER MIX
YR, YG, YB SYNTHESIS
TITLE Y READ
EDGE SYNTHESIS
CR, CG, CB SYNTHESIS
EDGE SYNTHESIS
FRAME DETECT
PHASE DETECT
INVERT
Y/C DELAY
TITLE Y+C READ
V TITLE AREA
A TITLE AREA SCROLL MODE GENERATOR
SCROLL MODE
SYSTEM MODE COMMAND
COMMAND DECODE
H TIMING GENERATOR
SYSTEM RESET
MASTER LOCK
BUSY
CS
SI
SCK
LCLR
33
34
36
35
64
OSCO
OSC I
11
9
CT161
PLL ADJ
D161
VCO
LPF
PD UP
XP DN
12
13
Y
Y
Y
C
C
C
C

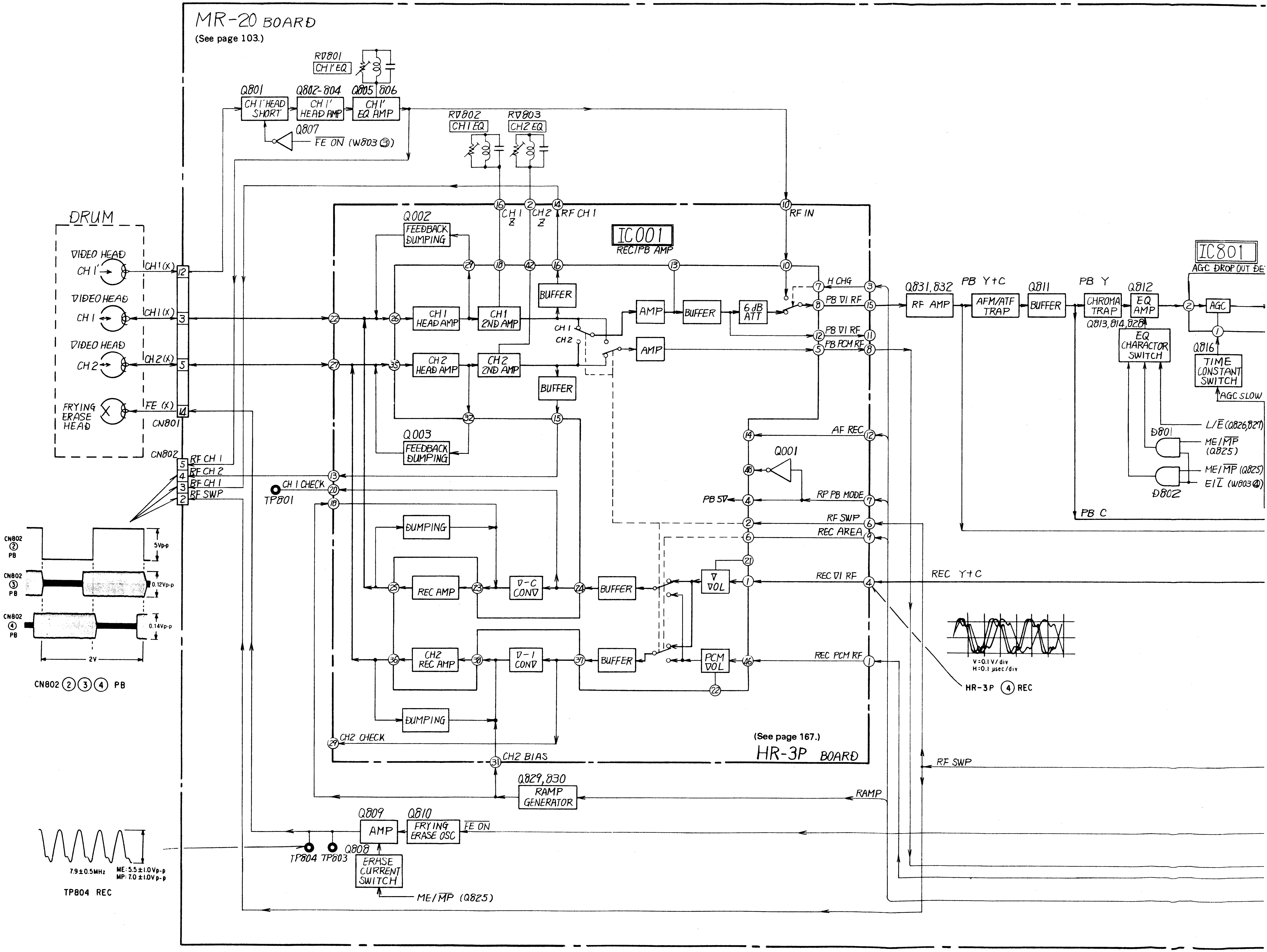

DDS B
DDS W
W901
12
11
DDS B
DDS W
VIDEO (1)
(VI-71)
54
49
OE
WE
20-24,27
28,29,51,52,55,53,30,50
31
A14
16
15
14
CG BK
CG IN
CG MK
A0
A5
6
A6
A13
8
H ADDRESS COUNTER
H TITLE AREA
V ADDRESS COUNTER
A14 GENERATOR
TITLE Y READ
CHARACTER MIX
YR,YG,YB SYNTHESIS
Y RO
Y CO
Y BO
48
47
46
Y MATRIX
TY MIX
CN161
9
TY MIX
E DGE SYNTHESIS
45
TY BLK
10
TY BLK
CR,CG,CB SYNTHESIS
C RO
C CO
C BO
41
40
39
TR
TG
TB
13
14
15
TR
TG
TB
CAMERA
(VC-55P)
E DGE SYNTHESIS
C BLK
38
TC BLK
16
TC BLK
TITLE C READ
INVERT
Y/C DELAY
TITLE Y+C READ
V TITLE AREA
L MODE
A TITLE AREA SCROLL MODE GENERATOR
FRAME DETECT
VD
HD
43
44
CN161
VD
HD
12
11
VD
HD
CAMERA
(VC-55P)
H TIMING GENERATOR
PHASE DETECT
MASTER LOCK
OSC O
OSC I
11
9
PD UP
XP DN
12
13
LPF
CT161
PLL ADJ
D161
VCO
S RAM CS
SCK
DATA TO SLVE
TITLE CS
DATA TO MSTR
SYSCON

3-6. VIDEO(1) BLOCK DIAGRAM


VI-71 BOARD
(See page 109.)
VI-72 BOARD (See page 117.)
(See page 169.)
HD-8P BOARD
TO VIDEO (2) (MR-20 BOARD)
TO SERVO (AT-8P BOARD)
TO AUDIO (AT-8P BOARD)
CN404
CN401
REC VIDEO
REC Y (S VIDEO)
REC Y (CAM)
PB Y
PB C
IC409 (1/3) PB SP/LP DET
IC409 (1/3) PRE-EMPHASIS
IC410 Y PROCESS
IC401 CAMERA INPUT SELECT
IC403 CHARACTER INSERT GRAY SCREEN
IC404 CHARACTER INSERT GRAY SCREEN
IC408 SYNC DET
IC406 DATA SCREEN SYNC GENERATOR
IC609 LIMITER AMP
IC601 CHROMA EMPHASIS
IC602 CHROMA PROCESS
IC603 JOG CHROMA PROCESS
IC604 AFC PULSE GENERATOR
IC605
IC606 REC/PB SWITCH, MUTING
IC201 COMB FILTER
FL402 REC Y LPF DELAY
FL401 DEMODE OUT LPF
FM MOD
FM DEMOD
DROP OUT DET
NOISE-CANCEL APEATURE COMPENSATION
SHARPNESS SWITCH
C/AFM/ATF MIX
MP/ME GAIN SWITCH
4.43MHz XTAL OSC
90° SHIFT
SYNTHESIS GATE
DELAY PULSE GENERATOR
H SYNC

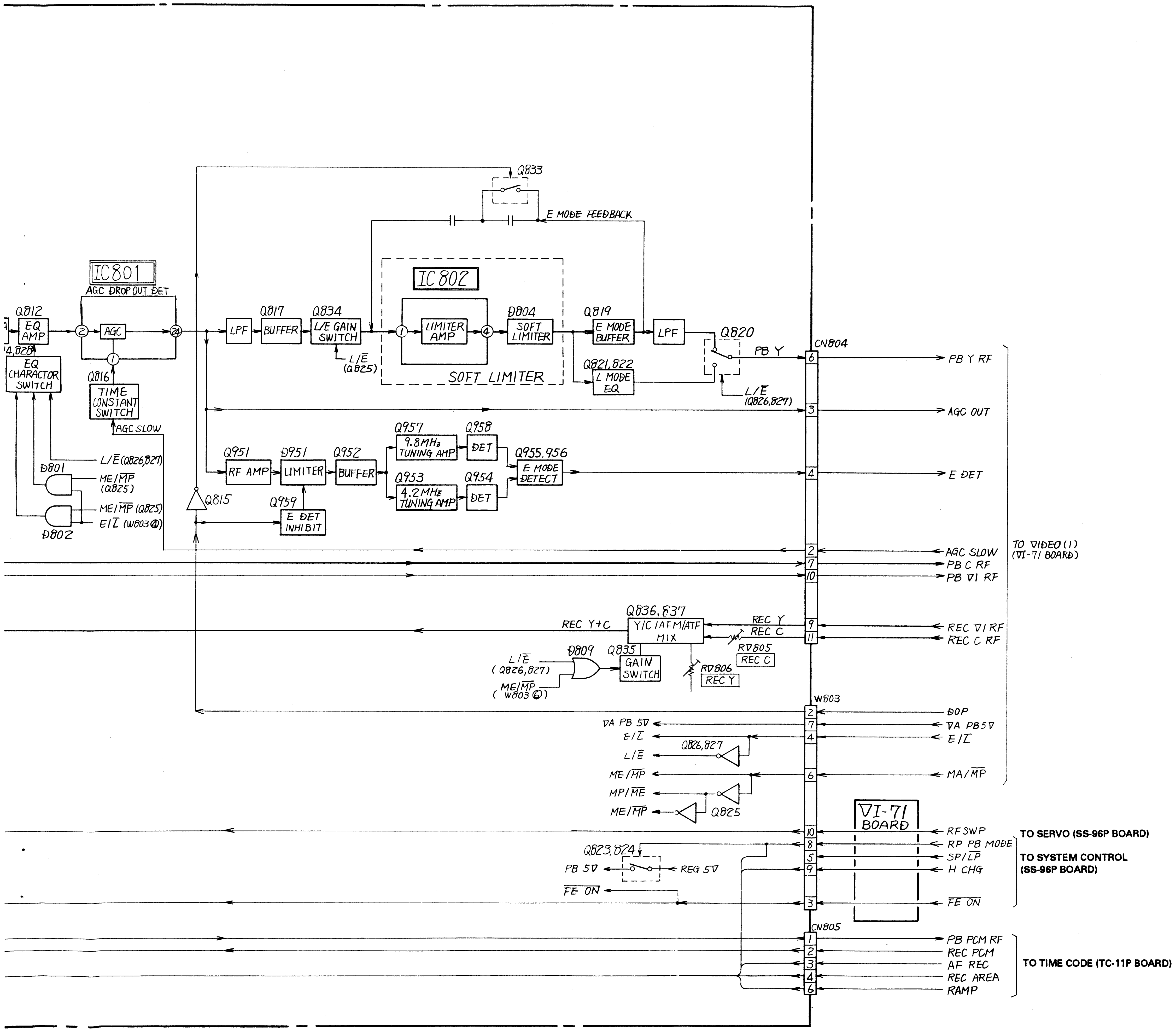

IC401
CAMERA INPUT SELECT
IC406
SYNC GENERATOR
IC407
CHARACTER GENERATOR
IC405
EXPANTION PORT
SS-96P BOARD
TO TIME CODE (TC-11P BOARD)
TO CAMERA (VC-55P BOARD)
TO DIGITAL TITEL (FD-14P BOARD)
TO SERVO SYSTEM CONTROL (SS-96P BOARD)
CN406
CN405
W404
W406
W403
W601
IC201
IC202 (1/2)
IC203 Y-YD DIFFERENTIAL DET
IC204
Q202 EDIT SWITCH
X201 13.3MHz
DL603 BAND CORRECTION FILTER
4.43MHz TRAP
Q205 GAIN SWITCH
Q204 GAIN SWITCH
Q206 BUFFER
Q201 Q203 YD GAIN SWITCH
RV201 FLCK ADJ
Q609 SUB AREA SWITCH
Q610 (1/2) Y COMB CHARACTER SWITCH
Q651 DELAY
REC/PB Y
PB Y
PB C
REC VIDEO
REC Y (CAM)
REC C CAM
REC C (S VIDEO)
IC901 (1/3) Y OUT
CLAMP
POWER SAVE
RV904 Y OUT
IC902
Q907 BUFFER
CHROMA TRAP
Q923 CHROMA BUFFER
Q905,906 Y/C MIX
Q922 DC BIAS
Q919 BUFFER
IC901 (1/3) VIDEO OUT
RV901 VIDEO OUT
IC901 (1/3) EVF AMP 6dB
Q901 CHARACTER MIX
Q908,909 CHROMA OUT AMP
RV903 C OUT
Q910,911
Q914,915 CURRENT LIMITER
Q920
CAMERA/VTR (SYSTEM CONTROL) Q122
VF OUT TO EVF (EF-4P BOARD)
AF DISP TO AUTO FOUCS (AF-14P BOARD)
J903 S VIDEO OUT
J904 (1/2) VIDEO OUT
PJ-21P BOARD
REC C (S VIDEO)
REC Y (S VIDEO)
REC VIDEO (VIDEO)
IC901 ⑫ CAM REC/PB
(See page 125.) FD-14P BOARD (VIDEO)
page 169.)
8P BOARD
IC603
JOG CHROMA PROCESS
6dB
APC CORRECTION
GCA
MAIN SWITCH
BURST ID DET
SEQUENCE DET
SWITCH CONTROL
IIL LOGIC
CLF GENERATOR
S/H
LPF
FH VCO
D602 SHAPER
RV603 GCA
PHASE SHIFT
RV604 fH VCO
ACK (Q602)
FSC (IC602 ⑭)
PB CHROMA
VA PB MODE
JOG
BF
CLF
FL605
FL606
FH (IC604 ③)

VIDEO(2) BLOCK DIAGRAM


MR-20 BOARD
(See page 103.)
RV801 CH1'EQ
Q801 CH1'HEAD SHORT
Q802-804 CH1' HEAD AMP
Q805, 806 CH1' EQ AMP
Q807
FE ON (W803 ③)
RV802 CH1 EQ
RV803 CH2 EQ
DRUM
VIDEO HEAD CH1'
VIDEO HEAD CH1
VIDEO HEAD CH2
FRYING ERASE HEAD
CH1'(X)
CH1(X)
CH2(X)
FE (X)
CN801
CN802
RF CH1'
RF CH2
RF CH1
RF SWP
⑯ CH1 Z
② CH2 Z
⑭ RF CH1
⑩ RF IN
Q002 FEEDBACK DUMPING
Q003 FEEDBACK DUMPING
IC001 REC/PB AMP
CH1 HEAD AMP
CH1 2ND AMP
CH2 HEAD AMP
CH2 2ND AMP
BUFFER
AMP
6dB ATT
CH1
CH2
H CHG
PB VI RF
PB PCM RF
AF REC
Q001
RP PB MODE
PB 5V
RF SWP
REC AREA
REC VI RF
REC PCM RF
V VOL
PCM VOL
DUMPING
REC AMP
CH2 REC AMP
V-C CONV
V-I CONV
CH1 CHECK
TP801
CH2 CHECK
CH2 BIAS
(See page 167.)
HR-3P BOARD
Q831, 832 RF AMP
PB Y+C
AFM/ATF TRAP
Q811 BUFFER
PB Y
CHROMA TRAP
Q813, 814, 828
Q812 EQ AMP
EQ CHARACTOR SWITCH
IC801 AGC DROP OUT DE
AGC
Q816 TIME CONSTANT SWITCH
AGC SLOW
L/E (Q826, 827)
D801
ME/MP (Q825)
ME/MP (Q825)
E/I (W803 ④)
D802
PB C
REC Y+C
V: 0.1 V/div
H: 0.1 μsec/div
HR-3P ④ REC
RF SWP
Q829, 830 RAMP GENERATOR
RAMP
Q809 AMP
Q810 FRYING ERASE OSC
FE ON
TP804
TP803
Q808 ERASE CURRENT SWITCH
ME/MP (Q825)
CN802 ② PB
CN802 ③ PB
CN802 ④ PB
5Vp-p
0.12Vp-p
0.14Vp-p
2V
7.9±0.5MHz
ME: 5.5±1.0Vp-p
MP: 7.0±1.0Vp-p

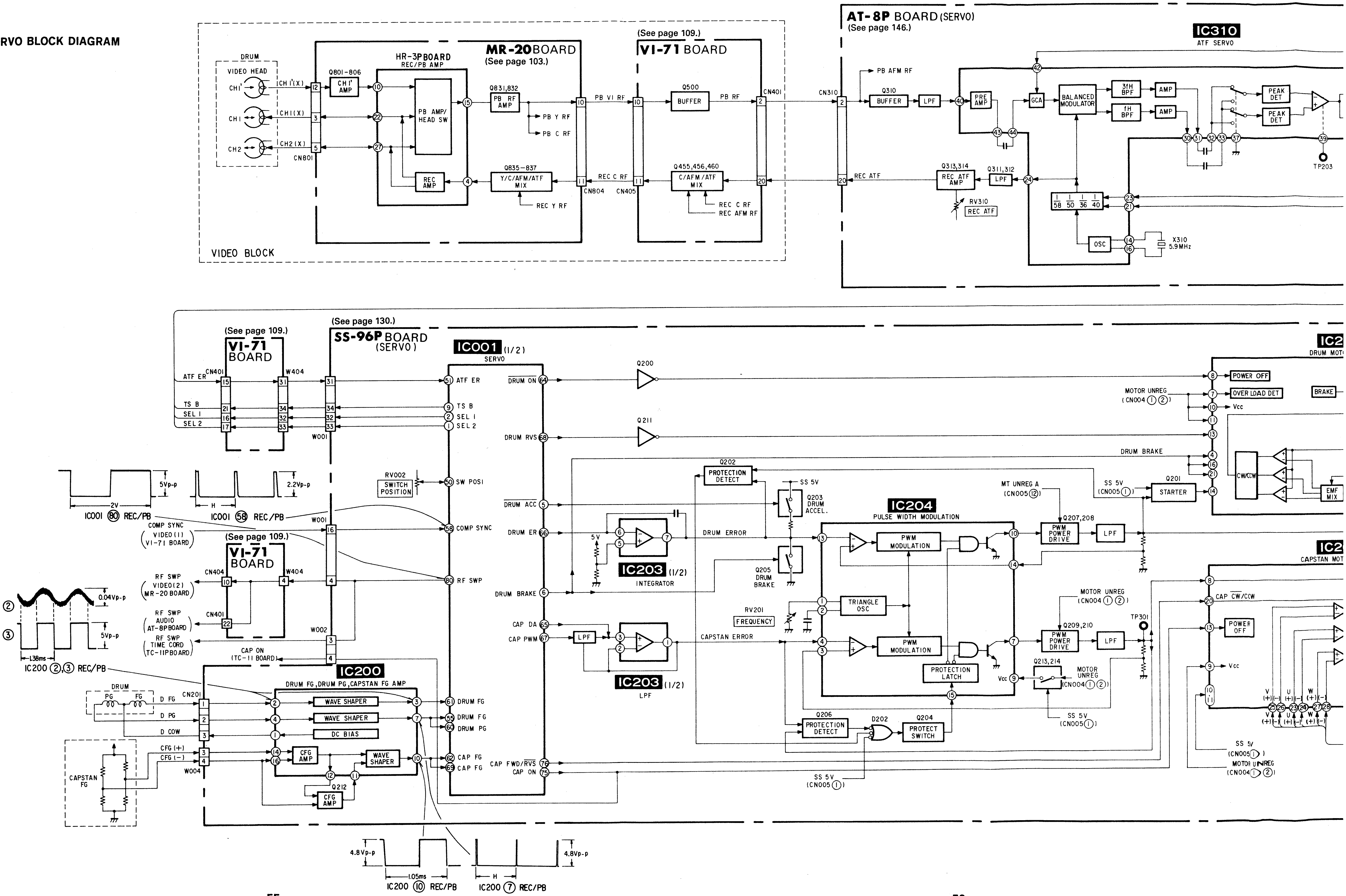
CN802 ②③④ PB

TP804 REC

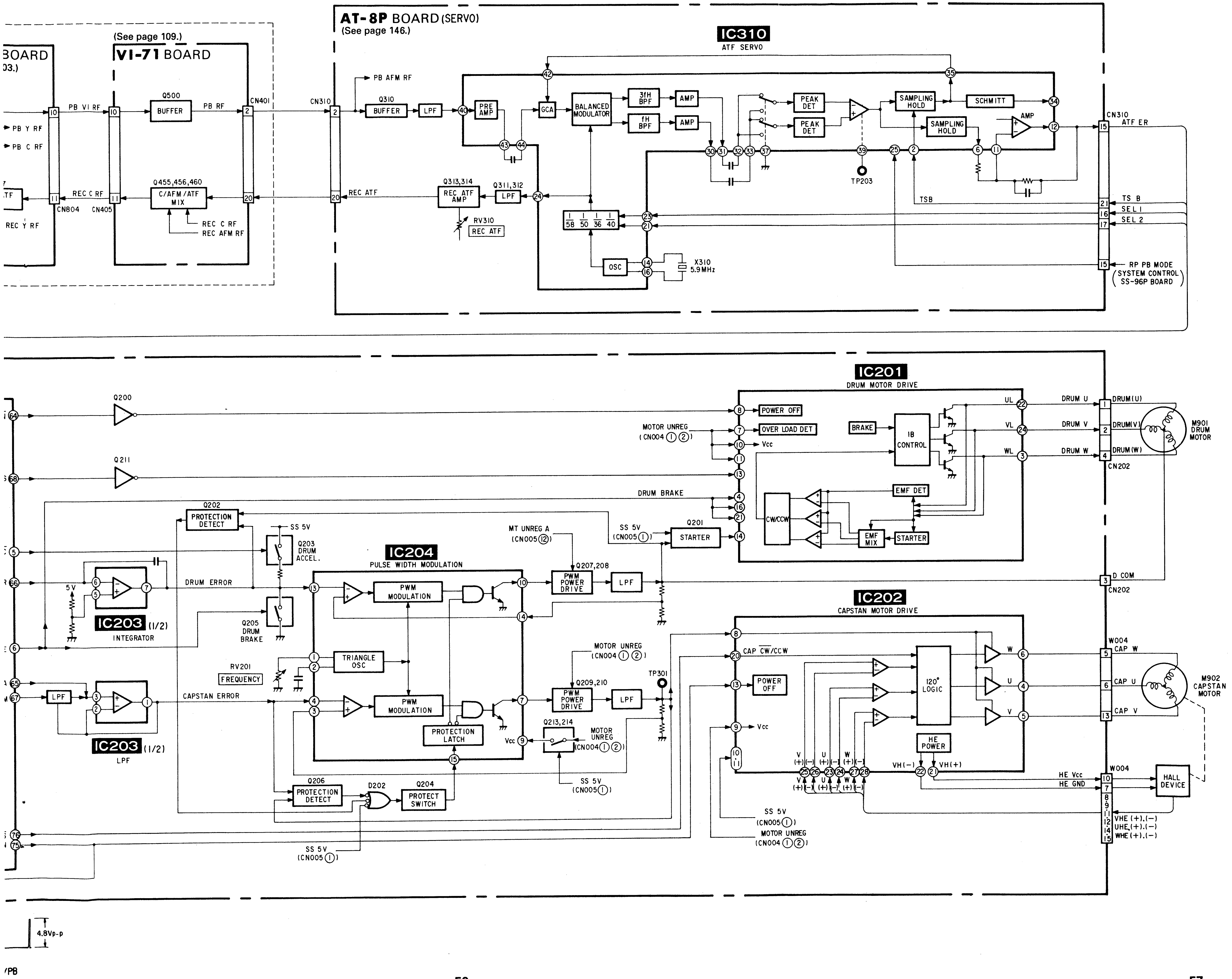


Q833
E MODE FEEDBACK
IC801
AGC DROP OUT DET
IC802
Q812
EQ AMP
AGC
Q817
BUFFER
Q834
L/E GAIN SWITCH
L/E (Q825)
LPF
LIMITER AMP
D804
SOFT LIMITER
SOFT LIMITER
Q819
E MODE BUFFER
LPF
Q820
PB Y
Q821,822
L MODE EQ
L/E (Q826,827)
EQ CHARACTOR SWITCH
Q816
TIME CONSTANT SWITCH
AGC SLOW
L/E (Q826,827)
D801
ME/MP (Q825)
ME/MP (Q825)
E/I (W803 ④)
D802
Q815
Q951
RF AMP
D951
LIMITER
Q952
BUFFER
Q959
E DET INHIBIT
Q957
9.8MHz TUNING AMP
Q958
DET
Q953
4.2MHz TUNING AMP
Q954
DET
Q955,956
E MODE DETECT
CN804
PB Y RF
AGC OUT
E DET
AGC SLOW
PB C RF
PB VI RF
TO VIDEO (1) (VI-71 BOARD)
Q836,837
Y/C IAFM/ATF MIX
REC Y+C
REC Y
REC C
REC VI RF
REC C RF
RV805
REC C
RV806
REC Y
D809
Q835
GAIN SWITCH
L/E (Q826,827)
ME/MP (W803 ⑥)
W803
DOP
VA PB 5V
VA PB5V
E/I
E/I
L/E
Q826,827
ME/MP
MA/MP
MP/ME
ME/MP
Q825
VI-71 BOARD
RF SWP
RP PB MODE
SP/LP
H CHG
FE ON
TO SERVO (SS-96P BOARD)
TO SYSTEM CONTROL (SS-96P BOARD)
Q823,824
PB 5V
REG 5V
FE ON
CN805
PB PCM RF
REC PCM
AF REC
REC AREA
RAMP
TO TIME CODE (TC-11P BOARD)

3-8. SERVO BLOCK DIAGRAM



VIDEO BLOCK
DRUM
VIDEO HEAD
CH1'
CH1
CH2
CH1'(X)
CH1(X)
CH2(X)
CN801
MR-20 BOARD
(See page 103.)
HR-3P BOARD
REC/PB AMP
Q801-806
CH1' AMP
PB AMP/ HEAD SW
REC AMP
Q831,832
PB RF AMP
PB Y RF
PB C RF
Q835-837
Y/C/AFM/ATF MIX
REC Y RF
PB VI RF
REC C RF
CN804
CN405
(See page 109.)
VI-71 BOARD
Q500
BUFFER
PB RF
CN401
Q455,456,460
C/AFM/ATF MIX
REC C RF
REC AFM RF
AT-8P BOARD (SERVO)
(See page 146.)
CN310
PB AFM RF
Q310
BUFFER
LPF
REC ATF
Q313,314
REC ATF AMP
Q311,312
LPF
RV310
REC ATF
IC310
ATF SERVO
PRE AMP
GCA
BALANCED MODULATOR
3fH BPF
fH BPF
AMP
PEAK DET
TP203
58 50 36 40
OSC
X310 5.9MHz
(See page 130.)
SS-96P BOARD (SERVO)
IC001 (1/2)
SERVO
ATF ER
TS B
SEL 1
SEL 2
CN401
W404
W001
W002
W004
SW POSI
COMP SYNC
RF SWP
DRUM ON
DRUM RVS
DRUM ACC
DRUM ER
DRUM BRAKE
CAP DA
CAP PWM
DRUM FG
DRUM PG
CAP FG
CAP FWD/RVS
CAP ON
RV002
SWITCH POSITION
Q200
Q211
Q202
PROTECTION DETECT
SS 5V
Q203
DRUM ACCEL.
Q205
DRUM BRAKE
IC203 (1/2)
INTEGRATOR
IC203 (1/2)
LPF
DRUM ERROR
CAPSTAN ERROR
5V
LPF
RV201
FREQUENCY
IC204
PULSE WIDTH MODULATION
TRIANGLE OSC
PWM MODULATION
PROTECTION LATCH
Q206
PROTECTION DETECT
D202
Q204
PROTECT SWITCH
SS 5V (CN005①)
MT UNREG A (CN005⑫)
Q207,208
PWM POWER DRIVE
Q209,210
LPF
TP301
Q213,214
MOTOR UNREG (CN004①②)
Vcc
Q201
STARTER
SS 5V (CN005①)
MOTOR UNREG (CN004①②)
DRUM BRAKE
IC2
DRUM MOT
POWER OFF
OVER LOAD DET
BRAKE
CW/CCW
EMF MIX
IC2
CAPSTAN MOT
CAP CW/CCW
POWER OFF
V U W
SS 5V (CN005①)
MOTOR UNREG (CN004①②)
VI-71 BOARD
(See page 109.)
CN404
CAP ON (TC-11 BOARD)
COMP SYNC VIDEO(1) VI-71 BOARD
RF SWP VIDEO(2) MR-20 BOARD
RF SWP AUDIO (AT-8P BOARD)
RF SWP TIME CORD (TC-11P BOARD)
IC200
DRUM FG, DRUM PG, CAPSTAN FG AMP
CN201
DRUM
PG FG
D FG
D PG
D COW
CFG (+)
CFG (-)
CAPSTAN FG
WAVE SHAPER
DC BIAS
CFG AMP
Q212
5Vp-p
2V
IC001 ⑳ REC/PB
2.2Vp-p
H
IC001 58 REC/PB
②
③
0.04Vp-p
5Vp-p
1.38ms
IC200 ②,③ REC/PB
4.8Vp-p
1.05ms
IC200 ⑩ REC/PB
H
IC200 ⑦ REC/PB


BOARD
03.)
(See page 109.)
VI-71 BOARD
AT-8P BOARD (SERVO)
(See page 146.)
IC310
ATF SERVO
PB VI RF
PB Y RF
PB C RF
REC C RF
REC Y RF
CN804
CN405
Q500
BUFFER
PB RF
CN401
Q455,456,460
C/AFM/ATF MIX
REC C RF
REC AFM RF
CN310
PB AFM RF
Q310
BUFFER
LPF
PRE AMP
GCA
BALANCED MODULATOR
3fH BPF
fH BPF
AMP
PEAK DET
SAMPLING HOLD
SCHMITT
AMP
REC ATF
Q313,314
REC ATF AMP
Q311,312
LPF
RV310
REC ATF
58 50 36 40
OSC
X310
5.9MHz
TP203
TSB
ATF ER
TS B
SEL 1
SEL 2
RP PB MODE
(SYSTEM CONTROL SS-96P BOARD)
IC201
DRUM MOTOR DRIVE
Q200
Q211
POWER OFF
OVER LOAD DET
MOTOR UNREG (CN004 ① ②)
Vcc
BRAKE
IB CONTROL
UL
VL
WL
DRUM U
DRUM V
DRUM W
DRUM(U)
DRUM(V)
DRUM(W)
CN202
M901 DRUM MOTOR
DRUM BRAKE
EMF DET
CW/CCW
EMF MIX
STARTER
Q201
STARTER
SS 5V (CN005 ①)
Q202
PROTECTION DETECT
SS 5V
Q203 DRUM ACCEL.
Q205 DRUM BRAKE
5V
IC203 (1/2)
INTEGRATOR
DRUM ERROR
IC204
PULSE WIDTH MODULATION
MT UNREG A (CN005 ⑫)
PWM MODULATION
Q207,208
PWM POWER DRIVE
LPF
D COM
CN202
TRIANGLE OSC
RV201
FREQUENCY
MOTOR UNREG (CN004 ① ②)
Q209,210
TP301
PROTECTION LATCH
Q213,214
MOTOR UNREG (CN004 ① ②)
SS 5V (CN005 ①)
IC203 (1/2)
LPF
CAPSTAN ERROR
Q206
PROTECTION DETECT
D202
Q204
PROTECT SWITCH
SS 5V (CN005 ①)
IC202
CAPSTAN MOTOR DRIVE
CAP CW/CCW
POWER OFF
120° LOGIC
HE POWER
W
U
V
W004
CAP W
CAP U
CAP V
M902 CAPSTAN MOTOR
VH(−)
VH(+)
HE Vcc
HE GND
HALL DEVICE
VHE (+),(−)
UHE (+),(−)
WHE (+),(−)
SS 5V (CN005 ①)
MOTOR UNREG (CN004 ① ②)
4.8Vp-p
/PB

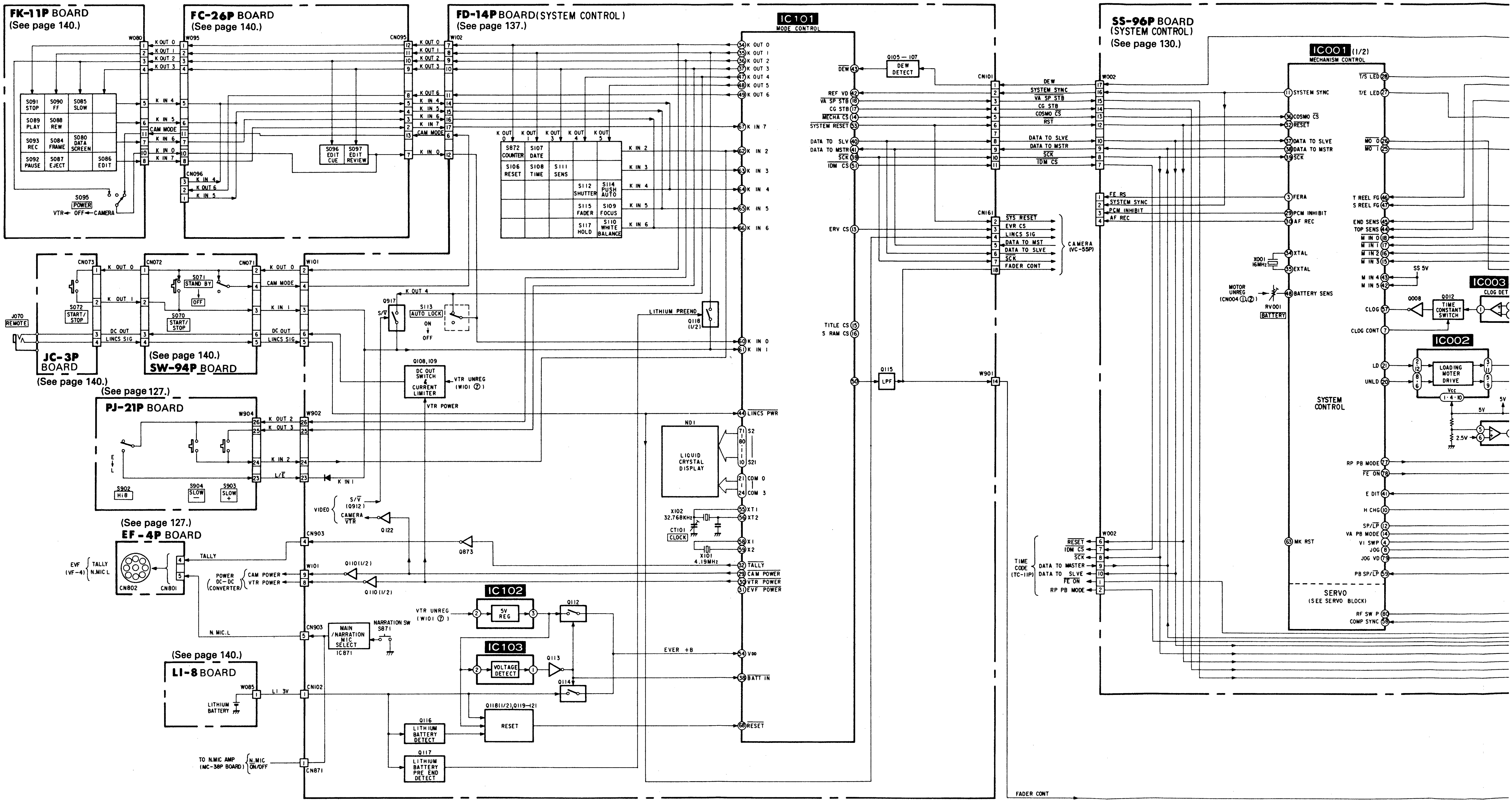
3-9. Servo/System Control IC Terminal Function

• SS-88P BOARD IC001 (CXP80116)

Pin No.	Port name	I/O	ACT.	Function
1	SEL 2	O	H	Controls the frequency of ATF REF PILOT Signal.
2	SEL 1	O	H	
3	(FERA)	O	H	Not used.
4	VI SWP	O	H	25Hz Periode duty 50% pulse during play back mode.
5	$\overline{\text{DRUM ACCEL}}$	O	L	Drum acceleraing signal during "SLOW" mode.
6	DRUM BRAKE	O	H	Drum reducing signal during "SLOW" mode.
7	CLOG CONT	O	H	Time constant changing signal for CLOG detection.
8	JOG	O	H	Video circuit normal/variable-speed playback switching signal.
9	TSB	O	H	ATF lock sampling hold signal. "LOW" during sampling. "High" during hold.
10	H CHG	O	H	
11	SYSTEM SYNC	O	H	INT-V signal for drum servo. Used as a clock during step start with drum driver IC (CXA1206).
12	SP/$\overline{\text{LP}}$	O	H	SP/LP discrimination signal output, "High" : SP mode. "LOW" : LP mode.
13	———			———
14	VA PB MODE	O	H	Video audio circuit REC/PB switching signal. "High" during play back.
15	$\overline{\text{M IN 3}}$	I	L	Key matrix input from mechanical function switch.
16	$\overline{\text{M IN 2}}$	I	L	
17	$\overline{\text{M IN 1}}$	I	L	
18	$\overline{\text{M IN 0}}$	I	L	
19	———			
20	LM UNLOAD	O	H	Loading motor control signal.
21	LM LOAD	O	H	Loading motor control signal.
22	———			———
23	———			———
24	M OUT 2	O	H	Key matrix out put signal.
25	$\overline{\text{M OUT 1}}$	O	L	
26	$\overline{\text{M OUT 2}}$	O	L	
27	TOP/END LED	O	H	Tape top/end detection LED ON/OFF signal.
28	$\overline{\text{REEL LED}}$	O	L	Reel rotalion detection LED control signal.
29	———			———
30	———			———
31	MP	I	—	Fixed at "LOW".
32	$\overline{\text{RST}}$	I	L	Reset input from mode control microcomputer.
33	GND	—	—	———
34	XTAL	I	—	16.0MHz Crystal oscillation connecting pin.
35	EXTAL	I	—	
36	$\overline{\text{MECH CS}}$	I	L	Chip select signal from mode control microcomputer.
37	DATA TO SLV	I	H	Communication data from mode controller to system/servo controller.
38	DATA TO MST	O	H	Communication data from system/servo controller to mode controller.
39	$\overline{\text{CLK}}$	I	L	Communication clock from mode control computer.
40	———	—	—	
41	E DET	I	H	Hi-8/Normal automatically detection signal input.
42	($\overline{\text{M IN 5}}$)	I	L	Not used, fixed at "LOW".
43	($\overline{\text{M IN 4}}$)	I	L	
44	TOP SENS	I	H	Tape top detection signal.
45	END SENS	I	H	Tape end detection signal.
46	T REEL FG	I	H	T-rell rotation detection signal input.
47	S REEL FG	I	H	S-reel rotation detection signal input.
48	BATT SENS	I		Battery level detection signal input.
49	———	—	—	———
50	SW POSI ADJ	I		Switching position adjustment input.
51	ATF ERROR	I		ATF error (ATF LOCK error) input.
52	AV_{ss}			AD converter GND pin.
53	AV_{ref}	I		AD converter reference voltage input pin.
54	AV_{dd}			AD converter positive power supply pin.
55	DRUM PG	I		Drum PG input. (50Hz).
56	———	—	—	
57	CLOG	I	H	CLOG detection signal (PB RF signal) input.
58	COMP SYNC	I		Video compsite sync signal input.
59	PB SP/$\overline{\text{LP}}$	I	H	SP/LP discrimination signal input when playback.
60	DRUM PG	I	H	Drum PG input.
61	DRUM FG	I	H	Drum FG input. (600Hz, duty 50%).
62	CAP FG	I	H	CAPSTAN FG input (SP : 1325Hz, duty50%).
63	$\overline{\text{MK RST}}$	O	L	Index operation control signal.
64	$\overline{\text{DRUM ON}}$	O	L	Drum driver ON signal.
65	CAP D/A	O	H	CAPSTAN servo control signal.
66	DRUM D/A	O	H	D/A gate pulse output pin to output DRUM error.
67	CAP PWM	O	H	PWM output pin servo exclusive output pin to output cap error.
68	DRUM RVS	O	H	Drum rotalion direction control signal. RVS by "High".
69	CAP FG	I	H	External event input pin to CAP FG input exclusive counter for tape counter drive.
70	———	—	—	———
71	NM 1		L	Non-maskable interrupt pin, normally "High".
72	V_{dd}			Positive power supply pin.

Pin No.	Port name	I/O	ACT.	Function
36	$\overline{\text{MECH CS}}$	I	L	Chip select signal from mode control microcomputer.
37	DATA TO SLV	I	H	Communication data from mode controller to system/servo controller.
38	DATA TO MST	O	H	Communication data from system/servo controller to mode controller.
39	$\overline{\text{CLK}}$	I	L	Communication clock from mode control computer.
40	———	—	—	
41	E DET	I	H	Hi-8/Normal automatically detection signal input.
42	($\overline{\text{M IN 5}}$)	I	L	} Not used, fixed at "LOW".
43	($\overline{\text{M IN 4}}$)	I	L	
44	TOP SENS	I	H	Tape top detection signal.
45	END SENS	I	H	Tape end detection signal.
46	T REEL FG	I	H	T-rell rotation detection signal input.
47	S REEL FG	I	H	S-reel rotation detection signal input.
48	BATT SENS	I		Battery level detection signal input.
49	———	—	—	———————
50	SW POSI ADJ	I		Switching position adjustment input.
51	ATF ERROR	I		ATF error (ATF LOCK error) input.
52	AV_{ss}			AD converter GND pin.
53	AV_{ref}	I		AD converter reference voltage input pin.
54	AV_{dd}			AD converter positive power supply pin.
55	DRUM PG	I		Drum PG input. (50Hz).
56	———	—	—	
57	CLOG	I	H	CLOG detection signal (PB RF signal) input.
58	COMP SYNC	I		Video compsite sync signal input.
59	PB SP/$\overline{\text{LP}}$	I	H	SP/LP discrimination signal input when playback.
60	DRUM PG	I	H	Drum PG input.
61	DRUM FG	I	H	Drum FG input. (600Hz, duty 50%).
62	CAP FG	I	H	CAPSTAN FG input (SP : 1325Hz, duty50%).
63	$\overline{\text{MK RST}}$	O	L	Index operation control signal.
64	$\overline{\text{DRUM ON}}$	O	L	Drum driver ON signal.
65	CAP D/A	O	H	CAPSTAN servo control signal.
66	DRUM D/A	O	H	D/A gate pulse output pin to output DRUM error.
67	CAP PWM	O	H	PWM output pin servo exclusive output pin to output cap error.
68	DRUM RVS	O	H	Drum rotalion direction control signal. RVS by "High".
69	CAP FG	I	H	External event input pin to CAP FG input exclusive counter for tape counter drive.
70	———	—	—	———————
71	NM 1		L	Non-maskable interrupt pin, normally "High".
72	V_{dd}			Positive power supply pin.
73	GND			GND pin.
74	———	—	—	———————
75	CAP ON	O	H	Capstan driver control signal.
76	CAP FWD	O	H	Capstan motor rotation direction control signal.
77	$\overline{\text{RP PB MODE}}$	O	L	Switching signals for REC/PB amplifier and REC/PB mode of ATF IC.
78	FE ON (FERS)	O	H	Flying erase oscillation ON/OFF signal.
79	JOG V_d	O	H	Insert to VIDEO signal when variable-speed playback.
80	RF SWP	O	H	RF SWP output pin.

3-10. SYSTEM CONTROL BLOCK DIAGRAM


FK-11P BOARD
(See page 140.)
FC-26P BOARD
(See page 140.)
FD-14P BOARD (SYSTEM CONTROL)
(See page 137.)
IC101
MODE CONTROL
SS-96P BOARD
(SYSTEM CONTROL)
(See page 130.)
IC001 (1/2)
MECHANISM CONTROL
IC002
IC003
JC-3P BOARD
(See page 140.)
SW-94P BOARD
(See page 140.)
PJ-21P BOARD
(See page 127.)
EF-4P BOARD
(See page 127.)
LI-8 BOARD
(See page 140.)
IC102
5V REG
IC103
VOLTAGE DETECT
S091 STOP
S090 FF
S085 SLOW
S089 PLAY
S088 REW
S093 REC
S084 FRAME
S080 DATA SCREEN
S092 PAUSE
S087 EJECT
S086 EDIT
S095 POWER
VTR OFF CAMERA
S096 EDIT CUE
S097 EDIT REVIEW
S872 COUNTER
S107 DATE
S106 RESET
S108 TIME
S111 SENS
S112 SHUTTER
S114 PUSH AUTO
S115 FADER
S109 FOCUS
S117 HOLD
S110 WHITE BALANCE
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
K OUT 6
K IN 0
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
K IN 6
K IN 7
CAM MODE
S071 STAND BY
OFF
S072 START/STOP
S070 START/STOP
J070 REMOTE
DC OUT
LINCS SIG
S113 AUTO LOCK
ON
OFF
Q917
S/V
Q108, 109
DC OUT SWITCH & CURRENT LIMITER
VTR UNREG (W101 ⑦)
VTR POWER
LITHIUM PREEND
Q118 (1/2)
S902 Hi8
S904 SLOW −
S903 SLOW +
L/E
VIDEO
S/V (Q912)
CAMERA VTR
Q122
Q873
TALLY
EVF (VF-4)
N.MIC L
CN802
CN801
POWER DC-DC CONVERTER
CAM POWER
VTR POWER
Q110 (1/2)
MAIN/NARRATION MIC SELECT IC871
NARRATION SW S871
LITHIUM BATTERY
LI 3V
Q116 LITHIUM BATTERY DETECT
Q117 LITHIUM BATTERY PRE END DETECT
Q118 (1/2), Q119–121
RESET
Q112
Q113
Q114
EVER +B
TO N.MIC AMP (MC-38P BOARD)
N.MIC ON/OFF
ND1
LIQUID CRYSTAL DISPLAY
X102 32.768KHz
CT101 CLOCK
X101 4.19MHz
DEW
Q105–107 DEW DETECT
REF VD
VA SP STB
CG STB
MECHA CS
SYSTEM RESET
DATA TO SLV
DATA TO MSTR
SCK
IDM CS
ERV CS
TITLE CS
S RAM CS
Q115 LPF
LINCS PWR
COM 0
COM 3
XT1
XT2
X1
X2
TALLY
CAM POWER
VTR POWER
EVF POWER
VDD
BATT IN
RESET
CN101
CN161
SYS RESET
EVR CS
LINCS SIG
DATA TO MST
DATA TO SLVE
FADER CONT
CAMERA (VC-55P)
W901
W002
SYSTEM SYNC
COSMO CS
RST
FE RS
PCM INHIBIT
AF REC
FERA
XTAL
EXTAL
X001 16MHz
MOTOR UNREG (CN004 ①②)
RV001 BATTERY
BATTERY SENS
MK RST
TIME CODE (TC-11P)
RESET
IDM CS
SCK
DATA TO MASTER
DATA TO SLVE
FE ON
RP PB MODE
SYSTEM CONTROL
SERVO (SEE SERVO BLOCK)
T/S LED
T/E LED
MO 0
MO 1
T REEL FG
S REEL FG
END SENS
TOP SENS
M IN 0
M IN 1
M IN 2
M IN 3
M IN 4
M IN 5
SS 5V
Q008
Q012 TIME CONSTANT SWITCH
CLOG DET
CLOG
CLOG CONT
LD
UNLD
LOADING MOTER DRIVE
Vcc
5V
2.5V
RP PB MODE
FE ON
E DIT
H CHG
SP/LP
VA PB MODE
V1 SWP
JOG
JOG VD
PB SP/LP
RF SW P
COMP SYNC
FADER CONT

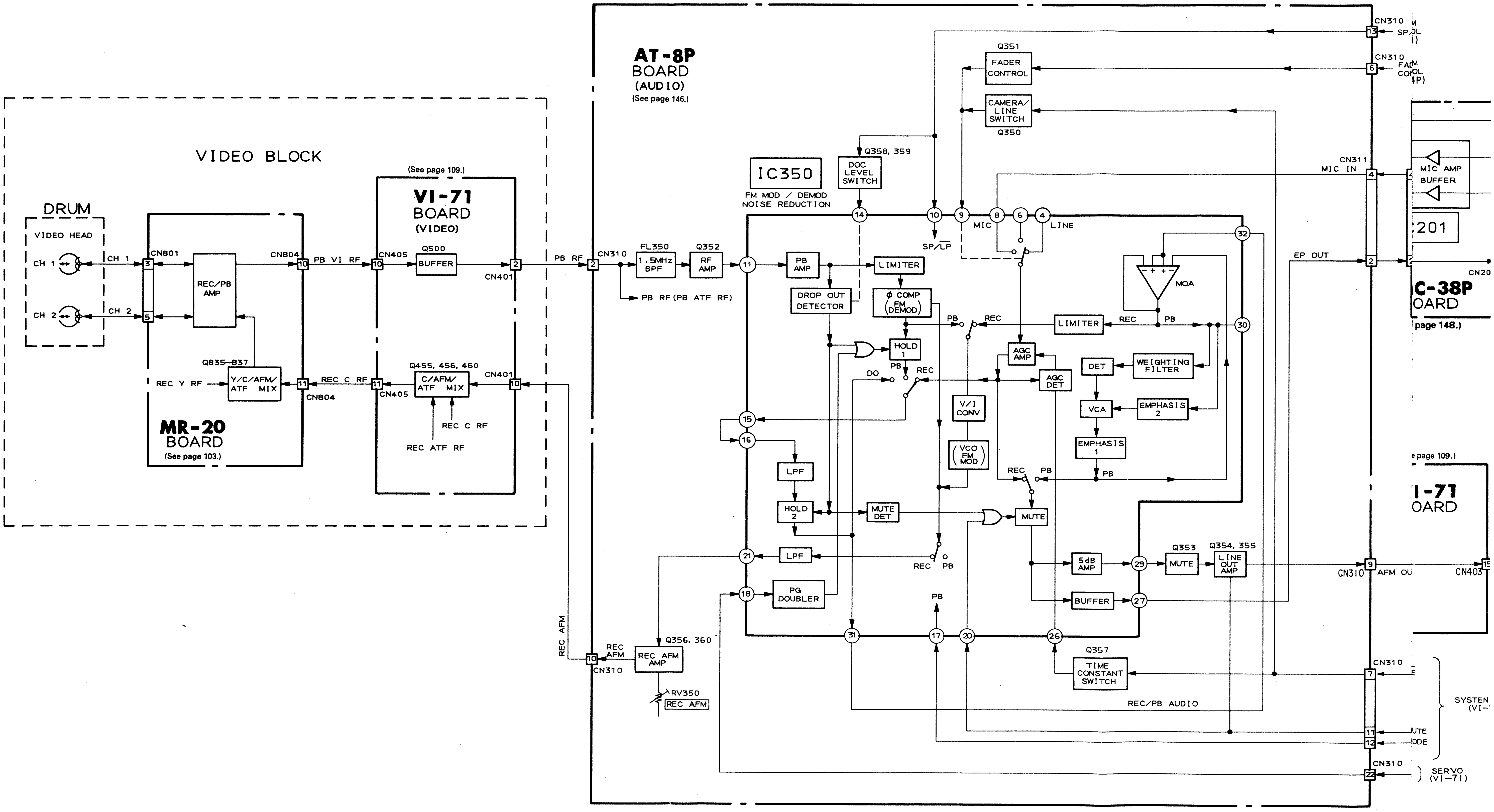
3-11. Mode Control IC Terminal Function

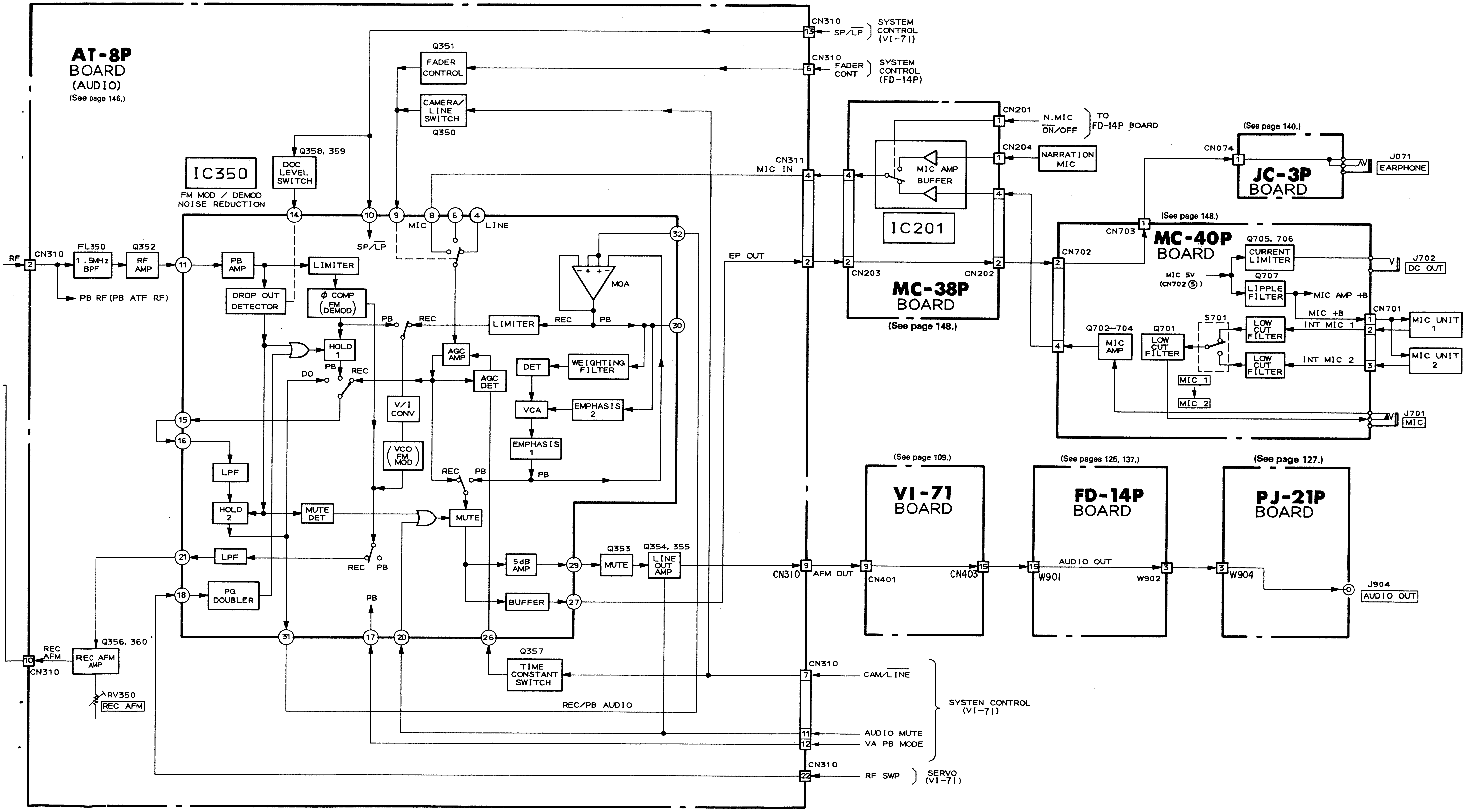
• FD-10P BOARD IC101 (μPD75316)

Pin No.	Port name	I/O	ACT.	Function
1	S12	O		LCD segment terminal drive output.
2	S13	O		
3	S14	O		
4	S15	O		
5	S16	O		
6	S17	O		
7	S18	O		
8	S19	O		
9	S20	O		
10	S21	O		
11	S22	—	—	————
12	S23	—	—	————
13	$\overline{\text{EVR CS}}$	O	L	EVR microcomputer communication chip select output.
14	$\overline{\text{MECHA CS}}$	O	L	MECHA Controller commnunication chip select signal.
15	TITLE CS	O	H	Title controller chip select output.
16	SRAM CS	O	H	SRAM chip select output. Title display : "HIGH".
17	CG STB	O	H	Strobe signal for charactor generator.
18	$\overline{\text{VA SP STB}}$	O	H	Strobe signal for sevies parallel of VIDEO.
19	———			
20	———			
21	COM 0	O		LCD common terminal drive output 0.
22	COM 1	O		LCD common terminal drive output 1.
23	COM 2	O		LCD common terminal drive output 2.
24	COM 3	O		LCD common terminal drive output 3.
25	BIAS	O	—	Fixed "LOW".
26	VLC 0	I	—	LCD power input terminal.
27	VLC 1	I	—	
28	VLC 2	I	—	
29	$\overline{\text{CAM POWER}}$	O	L	Camera power ON/OFF signal.
30	$\overline{\text{VTR POWER}}$	O	L	VTR power ON/OFF signal.
31	($\overline{\text{EVF POWER}}$)	O	L	Not used. (EVF power ON/OFF signal).
32	$\overline{\text{TALLY}}$	O	L	TALLY LED ON/OFF signal output.
33	GND	—	—	GND terminal.
34	$\overline{\text{K OUT 0}}$	O	L	Key matrix output 0.
35	$\overline{\text{K OUT 1}}$	O	L	Key matrix output 1.
36	$\overline{\text{K OUT 2}}$	O	L	Key matrix output 2.
37	$\overline{\text{K OUT 3}}$	O	L	Key matrix output 3.
38	$\overline{\text{BATT IN}}$	I	L	BATTERY attached or detached detection.
39	$\overline{\text{CLK}}$	I/O	L	"O" : Mode-controller clock, "I" CAMERA microcomputer clock. "I" during pin ⑬ $\overline{\text{EVRC S}}$ is "LOW", nomally "O" port.
40	DATA TO SLV	O	H	Communication data from mode-controller to system-controll/servo controller.
41	DATA TO MST	I	H	Communication data from another microcomputer.
42	REF V_d	I	L	SYSTEM SYNC.
43	$\overline{\text{DEW}}$	I	L	DEW detect signal.
44	$\overline{\text{LINCS PWR}}$	I	L	Input for release microcomputer stand by to turn on the unit from external with remote commander.
45	———			————
46	———			————
47	$\overline{\text{K OUT 4}}$	O	L	Key matrix output signal.
48	$\overline{\text{K OUT 5}}$	O	L	
49	$\overline{\text{K OUT 6}}$	O	L	
50	FADER PWM	O	H	PWM signal for CAMERA FADER output.
51	$\overline{\text{MARKER CS}}$	O	L	Video marker chip select signal.
52	———			————
53	$\overline{\text{SYSTEM RST}}$	O	L	Reset AF/SYSTEM CONTROLL microcomputers during Power ON.
54	V_{dd}	—	—	Positive power supply terminal.
55	XT 1	I		Display clock crystal oscillation connecting terminal.
56	XT 2	I		
57	———			————
58	X1	I		Main clock crystal oscillation connecting terminal.
59	X2	I		
60	K IN 0	I	L	Key matrix signal input.
61	K IN 1	I	L	
62	K IN 2	I	L	
63	K IN 3	I	L	Key matrix signal input.
64	K IN 4	I	L	
65	K IN 5	I	L	
66	K IN 6	I	L	
67	K IN 7	I	L	
68	$\overline{\text{RESET}}$	I	L	Reset signal input.
69	S0	O	—	Not used.
70	S1	O	—	Not used.
71	S2	O		LCD segment terminal drive output.
72	S3	O		
73	S4	O		
74	S5	O		
75	S6	O		
76	S7	O		
77	S8	O		
78	S9	O		
79	S10	O		
80	S11	O		

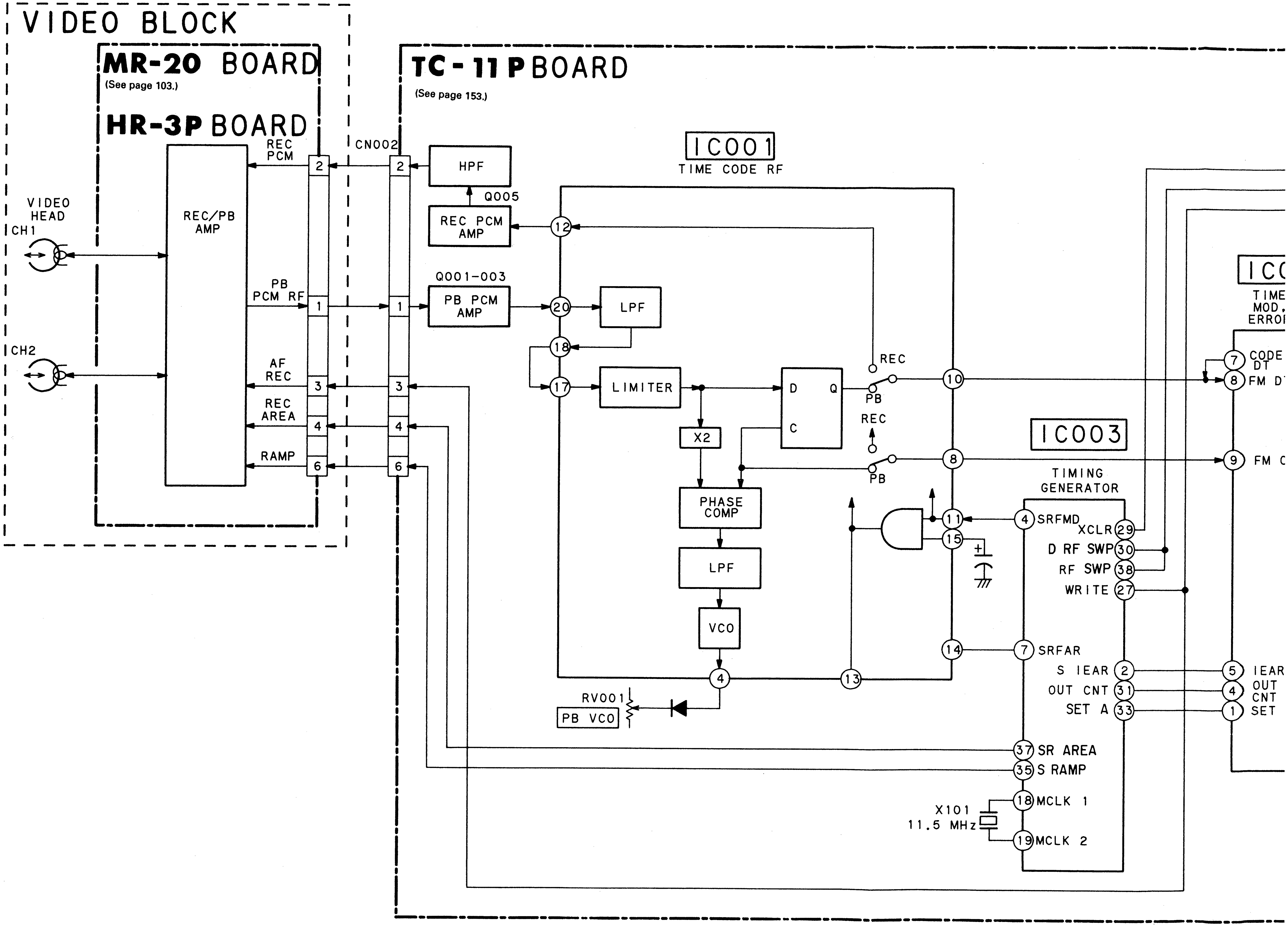
Pin No.	Port name	I/O	ACT.	Function
40	DATA TO SLV	O	H	Communication data from mode-controller to system-controll/servo controller.
41	DATA TO MST	I	H	Communication data from another microcomputer.
42	REF V_d	I	L	SYSTEM SYNC.
43	$\overline{\text{DEW}}$	I	L	DEW detect signal.
44	$\overline{\text{LINCS PWR}}$	I	L	Input for release microcomputer stand by to turn on the unit from external with remote commander.
45	———			———————
46	———			———————
47	$\overline{\text{K OUT 4}}$	O	L	Key matrix output signal.
48	$\overline{\text{K OUT 5}}$	O	L	
49	$\overline{\text{K OUT 6}}$	O	L	
50	FADER PWM	O	H	PWM signal for CAMERA FADER output.
51	$\overline{\text{MARKER CS}}$	O	L	Video marker chip select signal.
52	———			———————
53	$\overline{\text{SYSTEM RST}}$	O	L	Reset AF/SYSTEM CONTROLL microcomputers during Power ON.
54	V_{dd}	—	—	Positive power supply terminal.
55	XT 1	I		Display clock crystal oscillation connecting terminal.
56	XT 2	I		
57	———			———————
58	X1	I		Main clock crystal oscillation connecting terminal.
59	X2	I		
60	K IN 0	I	L	Key matrix signal input.
61	K IN 1	I	L	
62	K IN 2	I	L	
63	K IN 3	I	L	Key matrix signal input.
64	K IN 4	I	L	
65	K IN 5	I	L	
66	K IN 6	I	L	
67	K IN 7	I	L	
68	$\overline{\text{RESET}}$	I	L	Reset signal input.
69	S0	O	—	Not used.
70	S1	O	—	Not used.
71	S2	O		LCD segment terminal drive output.
72	S3	O		
73	S4	O		
74	S5	O		
75	S6	O		
76	S7	O		
77	S8	O		
78	S9	O		
79	S10	O		
80	S11	O		

3-12. AUDIO BLOCK DIAGRAM


VIDEO BLOCK
DRUM
VIDEO HEAD
CH 1
CH 2
CN801
REC/PB AMP
CN804
PB VI RF
Q835~837
REC Y RF
Y/C/AFM/ ATF MIX
REC C RF
MR-20 BOARD
(See page 103.)
(See page 109.)
VI-71 BOARD (VIDEO)
CN405
Q500
BUFFER
CN401
Q455, 456, 460
C/AFM/ ATF MIX
REC C RF
REC ATF RF
PB RF
REC AFM
AT-8P BOARD (AUDIO)
(See page 146.)
IC350
FM MOD / DEMOD NOISE REDUCTION
CN310
FL350
1.5MHz BPF
Q352
RF AMP
PB RF (PB ATF RF)
Q358, 359
DOC LEVEL SWITCH
PB AMP
DROP OUT DETECTOR
LIMITER
φ COMP (FM DEMOD)
HOLD 1
DO
PB
REC
LPF
HOLD 2
MUTE DET
V/I CONV
(VCO FM MOD)
SP/LP
MIC
LINE
Q351
FADER CONTROL
CAMERA/ LINE SWITCH
Q350
MOA
LIMITER
AGC AMP
AGC DET
DET
WEIGHTING FILTER
VCA
EMPHASIS 2
EMPHASIS 1
MUTE
5dB AMP
BUFFER
Q353
MUTE
Q354, 355
LINE OUT AMP
PG DOUBLER
Q356, 360
REC AFM AMP
RV350
REC AFM
Q357
TIME CONSTANT SWITCH
REC/PB AUDIO
CN311
MIC IN
EP OUT
MIC AMP
BUFFER
C-38P
OARD
page 148.)
e page 109.)
I-71
OARD
AFM OU
CN403
SYSTEM (VI-
UTE
ODE
SERVO (VI-71)


AT-8P
BOARD
(AUDIO)
(See page 146.)
IC350
FM MOD / DEMOD
NOISE REDUCTION
Q358, 359
DOC LEVEL SWITCH
Q351
FADER CONTROL
CAMERA/LINE SWITCH
Q350
CN310
SP/LP
SYSTEM CONTROL (VI-71)
CN310
FADER CONT
SYSTEM CONTROL (FD-14P)
RF
CN310
FL350
1.5MHz BPF
Q352
RF AMP
PB RF (PB ATF RF)
PB AMP
LIMITER
DROP OUT DETECTOR
ϕ COMP (FM DEMOD)
HOLD 1
DO
PB
REC
SP/LP
MIC
LINE
MOA
LIMITER
AGC AMP
AGC DET
DET
WEIGHTING FILTER
VCA
EMPHASIS 2
EMPHASIS 1
V/I CONV
VCO (FM MOD)
LPF
HOLD 2
MUTE DET
MUTE
LPF
PG DOUBLER
5dB AMP
BUFFER
Q353
MUTE
Q354, 355
LINE OUT AMP
REC AFM
Q356, 360
REC AFM AMP
RV350
REC AFM
Q357
TIME CONSTANT SWITCH
REC/PB AUDIO
CN311
MIC IN
EP OUT
CN310
AFM OUT
CAM/LINE
AUDIO MUTE
VA PB MODE
SYSTEN CONTROL (VI-71)
RF SWP
SERVO (VI-71)
CN201
N.MIC ON/OFF
TO FD-14P BOARD
CN204
NARRATION MIC
MIC AMP
BUFFER
IC201
CN203
CN202
MC-38P
BOARD
(See page 148.)
(See page 140.)
CN074
JC-3P
BOARD
J071
EARPHONE
(See page 148.)
CN703
MC-40P
BOARD
CN702
Q705, 706
CURRENT LIMITER
MIC 5V (CN702 ⑤)
Q707
LIPPLE FILTER
MIC AMP +B
MIC +B
J702
DC OUT
CN701
INT MIC 1
INT MIC 2
MIC UNIT 1
MIC UNIT 2
Q702~704
MIC AMP
Q701
LOW CUT FILTER
S701
LOW CUT FILTER
LOW CUT FILTER
MIC 1
MIC 2
J701
MIC
(See page 109.)
VI-71
BOARD
CN401
CN403
(See pages 125, 137.)
FD-14P
BOARD
AUDIO OUT
W901
W902
(See page 127.)
PJ-21P
BOARD
W904
J904
AUDIO OUT

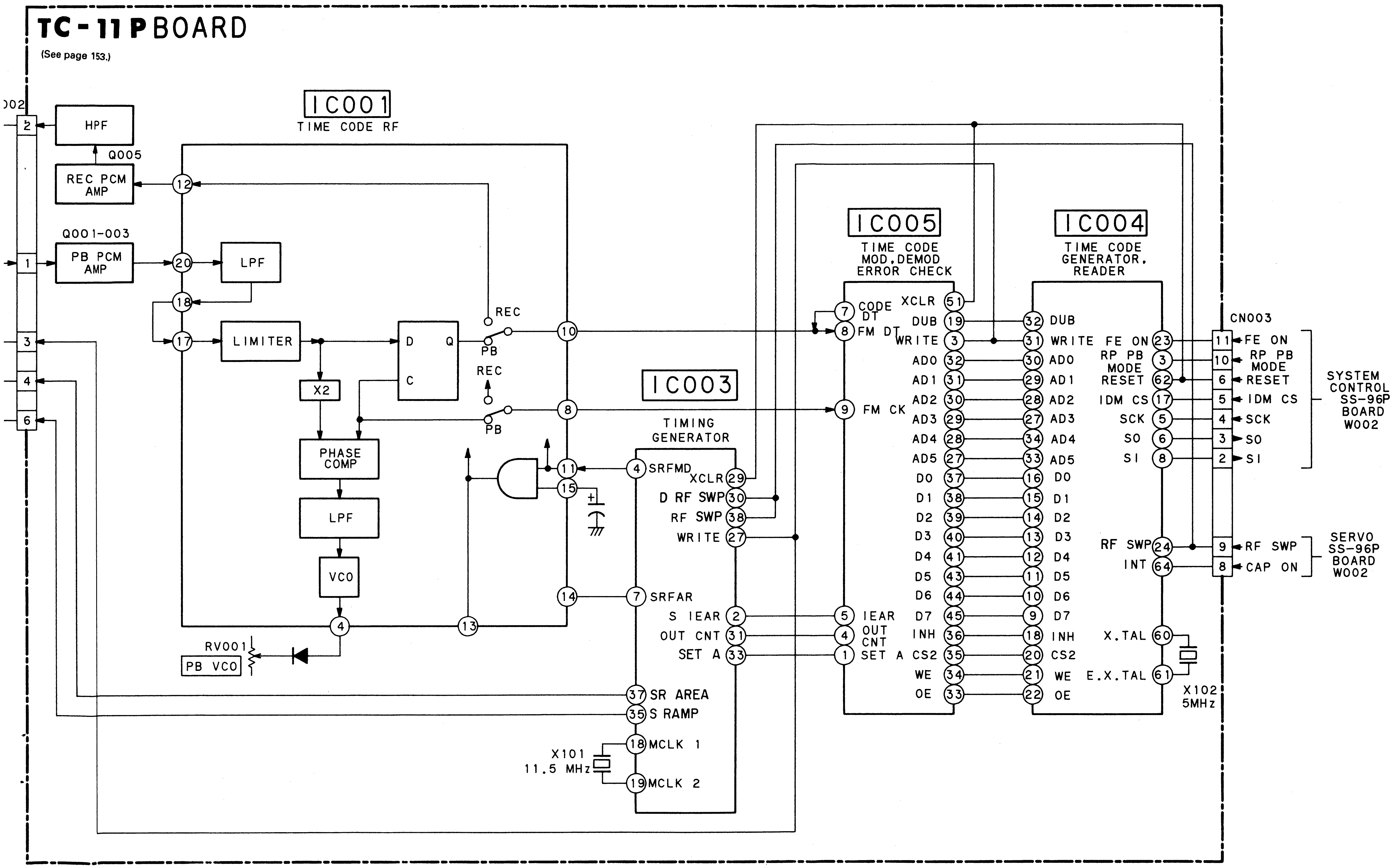
3-13. TIME CODE BLOCK DIAGRAM



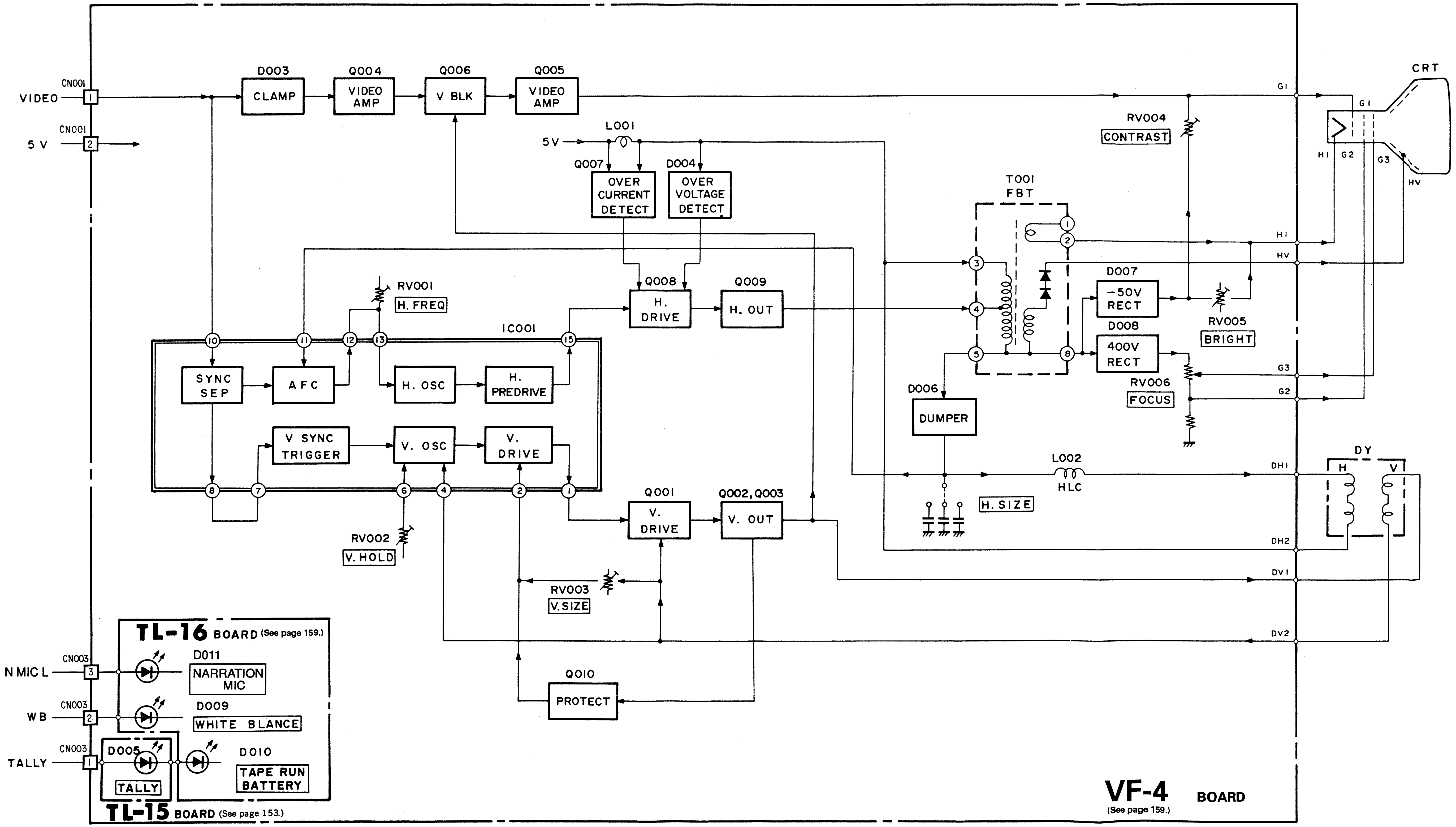
VIDEO BLOCK
MR-20 BOARD
(See page 103.)
HR-3P BOARD
VIDEO HEAD
CH1
CH2
REC/PB AMP
REC PCM
PB PCM RF
AF REC
REC AREA
RAMP
2
1
3
4
6
CN002
TC-11P BOARD
(See page 153.)
HPF
Q005
REC PCM AMP
Q001-003
PB PCM AMP
IC001
TIME CODE RF
LPF
LIMITER
X2
D
Q
C
PHASE COMP
LPF
VCO
REC
PB
REC
PB
12
20
18
17
10
8
11
15
14
13
4
RV001
PB VCO
IC003
TIMING GENERATOR
4 SRFMD
XCLR 29
D RF SWP 30
RF SWP 38
WRITE 27
7 SRFAR
S IEAR 2
OUT CNT 31
SET A 33
37 SR AREA
35 S RAMP
18 MCLK 1
19 MCLK 2
X101
11.5 MHz
IC
TIME
MOD.
ERRO
7 CODE DT
8 FM D
9 FM C
5 IEAR
4 OUT CNT
1 SET

TC-11P BOARD

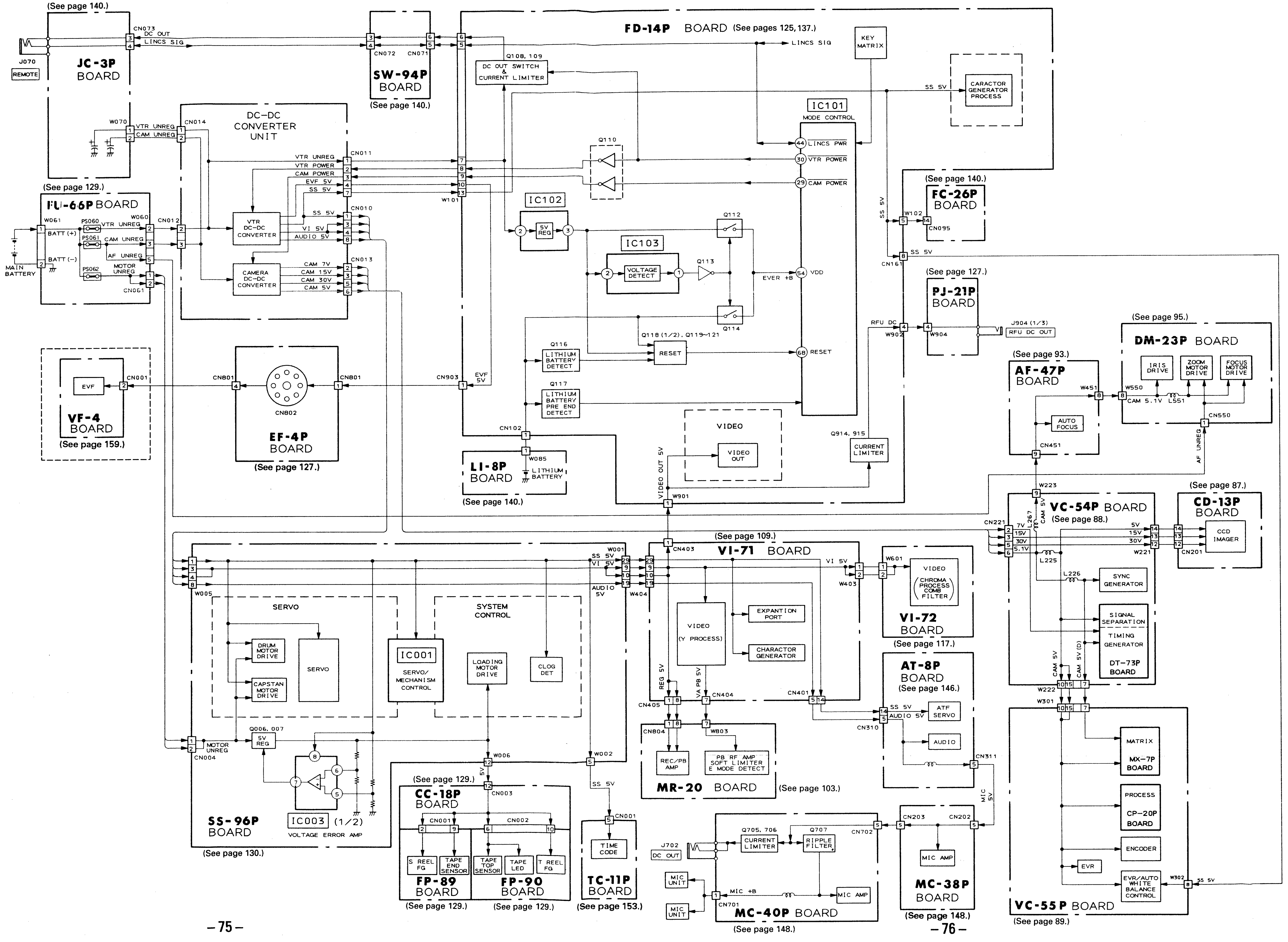
(See page 153.)


002
HPF
Q005
REC PCM AMP
Q001-003
PB PCM AMP
IC001
TIME CODE RF
LPF
LIMITER
D
Q
C
X2
PHASE COMP
LPF
VCO
REC
PB
REC
PB
RV001
PB VCO
IC003
TIMING GENERATOR
SRFMD
XCLR
D RF SWP
RF SWP
WRITE
SRFAR
S IEAR
OUT CNT
SET A
SR AREA
S RAMP
MCLK 1
MCLK 2
X101
11.5 MHz
IC005
TIME CODE MOD, DEMOD ERROR CHECK
CODE DT
FM DT
FM CK
IEAR
OUT CNT
SET A
XCLR
DUB
WRITE
AD0
AD1
AD2
AD3
AD4
AD5
D0
D1
D2
D3
D4
D5
D6
D7
INH
CS2
WE
OE
IC004
TIME CODE GENERATOR, READER
DUB
WRITE
AD0
AD1
AD2
AD3
AD4
AD5
D0
D1
D2
D3
D4
D5
D6
D7
INH
CS2
WE
OE
FE ON
RP PB MODE
RESET
IDM CS
SCK
SO
SI
RF SWP
INT
X.TAL
E.X.TAL
X102
5MHz
CN003
FE ON
RP PB MODE
RESET
IDM CS
SCK
SO
SI
RF SWP
CAP ON
SYSTEM CONTROL SS-96P BOARD W002
SERVO SS-96P BOARD W002

3-14. VIEWFINDER BLOCK DIAGRAM

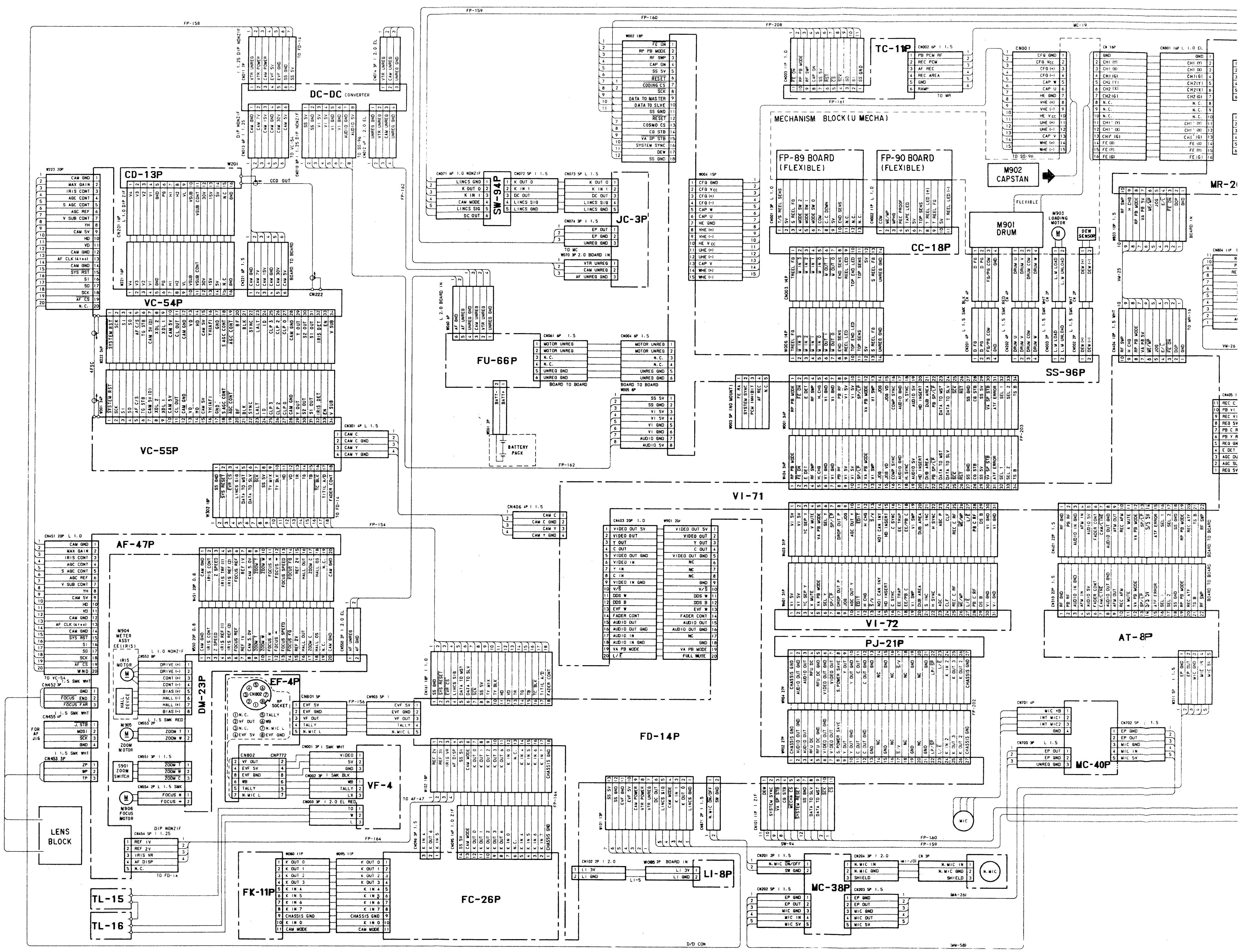

VIDEO
CN001
1
5 V
CN001
2
D003
CLAMP
Q004
VIDEO AMP
Q006
V BLK
Q005
VIDEO AMP
CRT
G1
G1
G2
G3
H1
HV
RV004
CONTRAST
5 V
L001
Q007
OVER CURRENT DETECT
D004
OVER VOLTAGE DETECT
T001
FBT
1
2
3
4
5
8
RV001
H. FREQ
Q008
H. DRIVE
Q009
H. OUT
D007
-50V RECT
RV005
BRIGHT
D008
400V RECT
RV006
FOCUS
IC001
10
11
12
13
15
SYNC SEP
AFC
H. OSC
H. PREDRIVE
V SYNC TRIGGER
V. OSC
V. DRIVE
8
7
6
4
2
1
D006
DUMPER
L002
HLC
H. SIZE
DY
H
V
DH1
DH2
DV1
DV2
Q001
V. DRIVE
Q002, Q003
V. OUT
RV002
V. HOLD
RV003
V. SIZE
Q010
PROTECT
TL-16 BOARD (See page 159.)
N MIC L
CN003
3
D011
NARRATION MIC
WB
CN003
2
D009
WHITE BLANCE
TALLY
CN003
1
D005
TALLY
D010
TAPE RUN BATTERY
TL-15 BOARD (See page 153.)
VF-4 BOARD
(See page 159.)

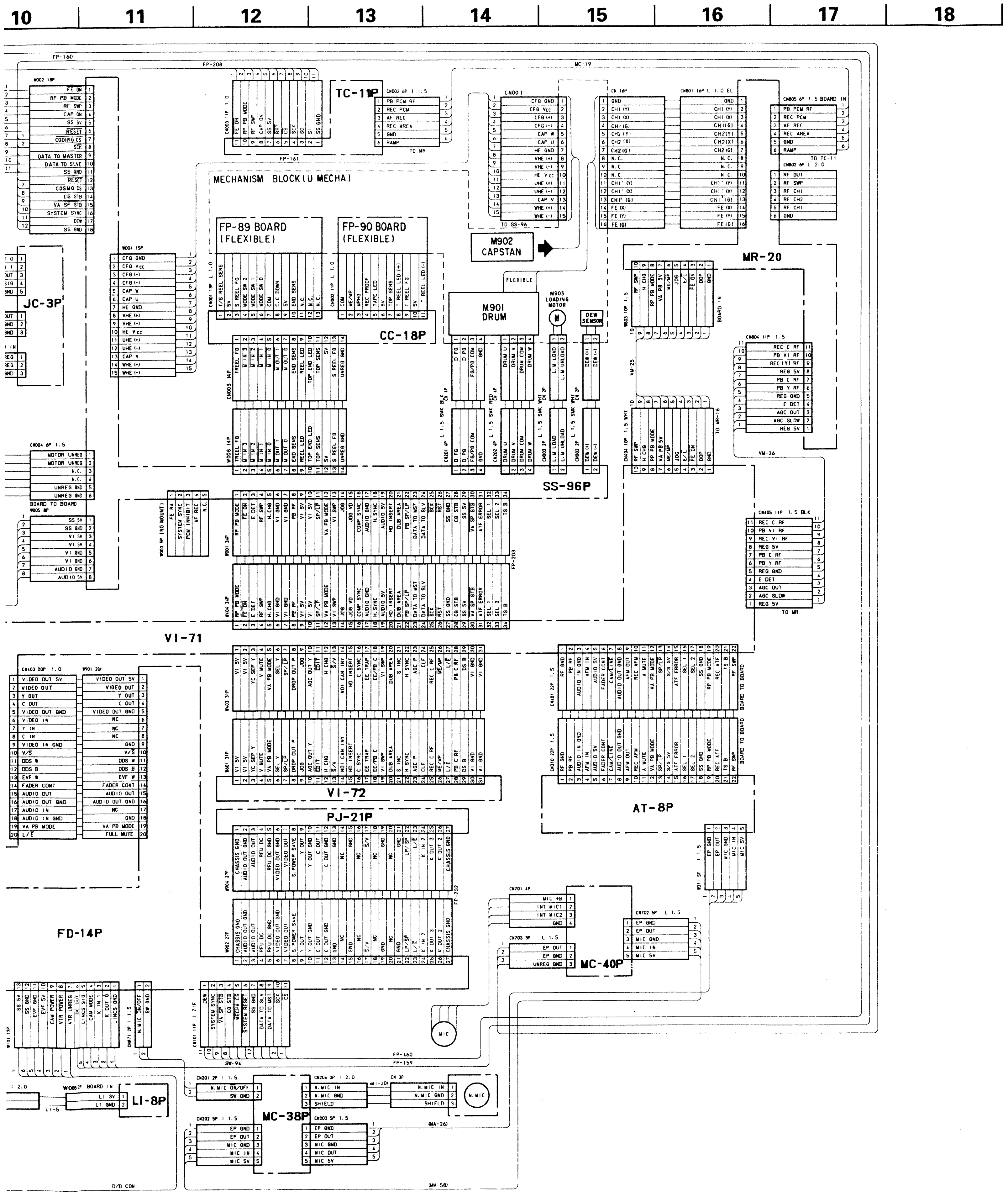
3-15. POWER BLOCK DIAGRAM


JC-3P BOARD
(See page 140.)
J070
REMOTE
CN073
DC OUT
LINCS SIG
W070
VTR UNREG
CAM UNREG
SW-94P BOARD
CN072
CN071
(See page 140.)
FD-14P BOARD (See pages 125, 137.)
Q108, 109
DC OUT SWITCH & CURRENT LIMITER
KEY MATRIX
LINCS SIG
SS 5V
CARACTOR GENERATOR PROCESS
IC101
MODE CONTROL
LINCS PWR
VTR POWER
CAM POWER
Q110
IC102
5V REG
Q112
IC103
VOLTAGE DETECT
Q113
EVER +B
VDD
Q114
Q118 (1/2), Q119~121
RESET
Q116
LITHIUM BATTERY DETECT
Q117
LITHIUM BATTERY PRE END DETECT
VIDEO
VIDEO OUT
Q914, 915
CURRENT LIMITER
CN102
CN903
EVF 5V
W101
DC-DC CONVERTER UNIT
CN014
CN011
VTR UNREG
VTR POWER
CAM POWER
EVF 5V
SS 5V
CN012
CN010
VTR DC-DC CONVERTER
VI 5V
AUDIO 5V
CN013
CAMERA DC-DC CONVERTER
CAM 7V
CAM 15V
CAM 30V
CAM 5V
(See page 129.)
FU-66P BOARD
W061
PS060
PS061
PS062
W060
BATT (+)
BATT (−)
AF UNREG
MOTOR UNREG
CN061
MAIN BATTERY
VF-4 BOARD
EVF
CN001
(See page 159.)
EF-4P BOARD
CN801
CN802
(See page 127.)
LI-8P BOARD
W085
LITHIUM BATTERY
(See page 140.)
(See page 140.)
FC-26P BOARD
W102
CN095
CN161
(See page 127.)
PJ-21P BOARD
RFU DC
W902
W904
J904 (1/3)
RFU DC OUT
(See page 95.)
DM-23P BOARD
IRIS DRIVE
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
W550
CAM 5.1V
L551
CN550
AF UNREG
(See page 93.)
AF-47P BOARD
W451
AUTO FOCUS
CN451
W223
VIDEO OUT 5V
W901
VC-54P BOARD
(See page 88.)
CN221
7V
15V
30V
5.1V
L267
CAM 5V
L225
L226
SYNC GENERATOR
SIGNAL SEPARATION
TIMING GENERATOR
DT-73P BOARD
W221
W222
(See page 87.)
CD-13P BOARD
CCD IMAGER
CN201
W001
W005
SS 5V
VI 5V
AUDIO 5V
W404
SERVO
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
SYSTEM CONTROL
IC001
SERVO/MECHANISM CONTROL
LOADING MOTOR DRIVE
CLOG DET
Q006, 007
5V REG
MOTOR UNREG
CN004
IC003 (1/2)
VOLTAGE ERROR AMP
SS-96P BOARD
(See page 130.)
W006
W002
(See page 129.)
CC-18P BOARD
CN003
CN001
CN002
S REEL FG
TAPE END SENSOR
TAPE TOP SENSOR
TAPE LED
T REEL FG
FP-89 BOARD
FP-90 BOARD
(See page 129.)
(See page 129.)
CN001
TIME CODE
TC-11P BOARD
(See page 153.)
(See page 109.)
CN403
VI-71 BOARD
VI 5V
W403
VIDEO (Y PROCESS)
EXPANTION PORT
CHARACTOR GENERATOR
REG 5V
VA PB 5V
CN404
CN405
CN401
W601
VIDEO (CHROMA PROCESS COMB FILTER)
VI-72 BOARD
(See page 117.)
AT-8P BOARD
(See page 146.)
SS 5V
AUDIO 5V
ATF SERVO
AUDIO
CN310
CN311
MIC 5V
CN804
W803
REC/PB AMP
PB RF AMP SOFT LIMITER E MODE DETECT
MR-20 BOARD
(See page 103.)
J702
DC OUT
MIC UNIT
MIC UNIT
Q705, 706
CURRENT LIMITER
Q707
RIPPLE FILTER
CN702
MIC +B
MIC AMP
CN701
MC-40P BOARD
(See page 148.)
CN203
CN202
MIC AMP
MC-38P BOARD
(See page 148.)
W301
MATRIX
MX-7P BOARD
PROCESS
CP-20P BOARD
ENCODER
EVR
EVR/AUTO WHITE BALANCE CONTROL
W302
SS 5V
VC-55P BOARD
(See page 89.)

SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
DC-DC CONVERTER
CD-13P
VC-54P
VC-55P
AF-47P
DM-23P
EF-4P
VF-4
FK-11P
FC-26P
TL-15
TL-16
LENS BLOCK
SW-94P
JC-3P
FU-66P
BATTERY PACK
TC-11P
MECHANISM BLOCK(U MECHA)
FP-89 BOARD (FLEXIBLE)
FP-90 BOARD (FLEXIBLE)
CC-18P
M901 DRUM
M902 CAPSTAN
M903 LOADING MOTOR
DEW SENSOR
SS-96P
VI-71
VI-72
PJ-21P
FD-14P
AT-8P
MC-40P
MC-38P
LI-8P
MR-2
M904 METER ASSY (IRIS)
M905 ZOOM MOTOR
M906 FOCUS MOTOR
S901 ZOOM SWITCH
MIC
N.MIC


10
11
12
13
14
15
16
17
18
FP-160
FP-208
MC-19
TC-11P
MECHANISM BLOCK (U MECHA)
FP-89 BOARD (FLEXIBLE)
FP-90 BOARD (FLEXIBLE)
M902 CAPSTAN
M901 DRUM
M903 LOADING MOTOR
DEW SENSOR
FLEXIBLE
TO SS-96
CC-18P
MR-20
JC-3P
SS-96P
VM-25
VM-26
TO MR
VI-71
VI-72
PJ-21P
AT-8P
FD-14P
MC-40P
MC-38P
LI-8P
MIC
N.MIC
SW-94
FP-159
FP-202
FP-203
D/D CON
BOARD TO BOARD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIA

THIS NOTE IS COMMON FOR PRINTED WIRING BC AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in

- **For printed wiring boards.**
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.*
- Circled numbers refer to waveforms.
- The parts with the indication of NOMT are not mounted.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagram.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W or 1/16W unless otherwise note
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- The parts with the indication of NOMT are not mounted.
- ☐ : adjustment for repair.*
- ━ : B + Line*
- Circled numbers refer to waveforms.*
- ⇨ : IN/OUT direction of B (+, –) line.*

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* indicated by the color red.

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.*
- Circled numbers refer to waveforms.
- The parts with the indication of NOMT are not mounted.

Caution:
Pattern face side: (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagram.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W or 1/16W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- The parts with the indication of NOMT are not mounted.
- ▭ : adjustment for repair.*
- ━ : B + Line*
- Circled numbers refer to waveforms.*
- ⇨ : IN/OUT direction of B (+, −) line.*

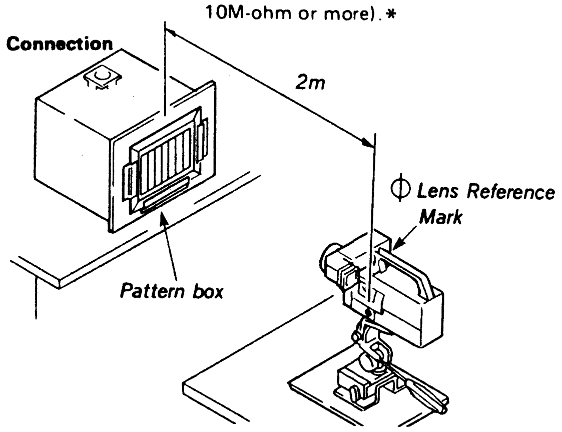
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* indicated by the color red.

- **For voltage and waveforms. (CAM REC mode)**
- Voltage and waveform measuring conditions:*
  (1) Sample object: Pattern box color bars.*
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).*

1. Connection



2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

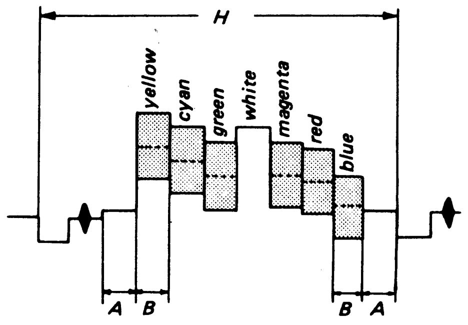


Fig. a Video output waveform of J904 on PJ-21P board.

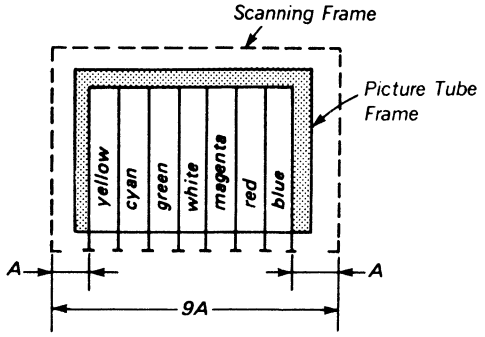


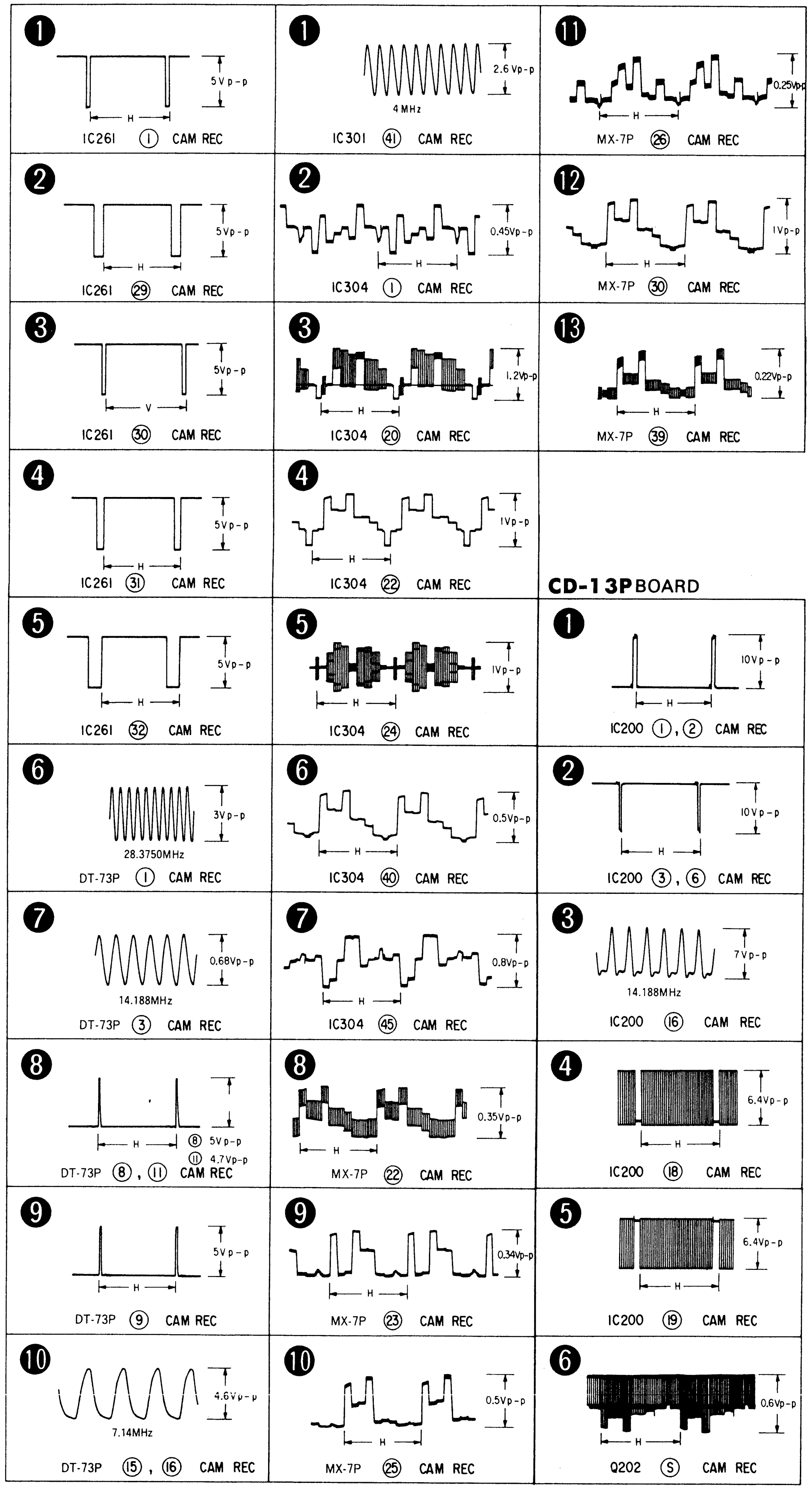
Fig. b Picture of TV monitor screen

- **For voltage and waveforms. (REC/PB mode)**
- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Precautions for replacement of CCD imager block.

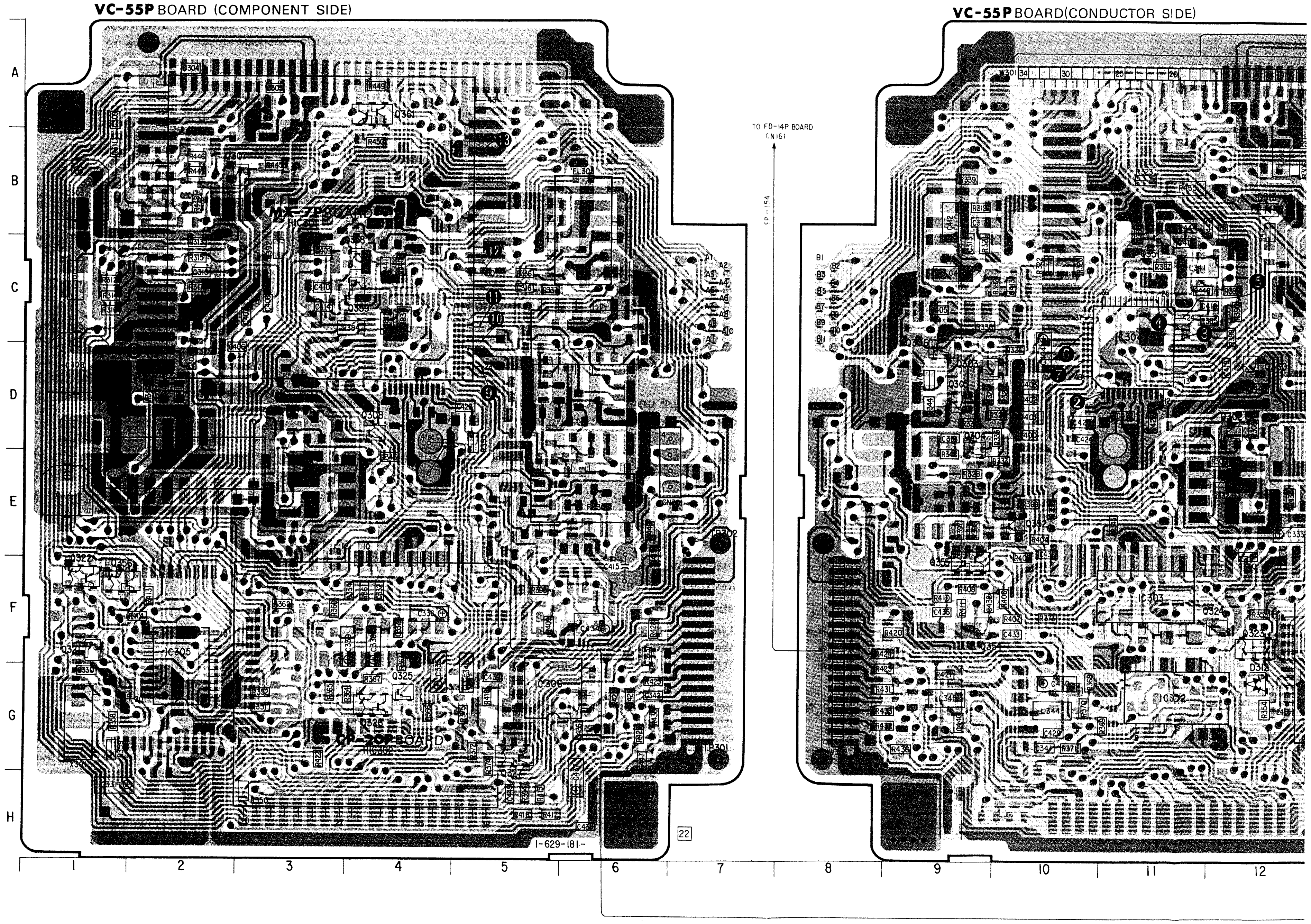
- With a pair of IC200 (CCD imager) on the CD-13P complete board and IC005 (corrector ROM) on the DT-73P complete board, it is used a repair part of the CCD imager block.
  Since corrector ROM IC is manufactured to match the CCD imager, replacement of a single unit of the CCD imager corrector ROM cannot be allowed.
- When both a CCD imager and the corrector ROM, replace both the CCD imager and the corrector ROM, when a corrector ROM is not mounted on the service set, install a corrector ROM which is supplied anew.
- IC200 (CCD imager) is not mounted on the CD-13P complete board to be supplied as a repair part, and IC005 (corrector ROM) is not mounted on the DT-73P complete board to be supplied as a repair part. When the respective boards are replaced, remove the respective ICs from the old boards and install them to the new ones respectively.
- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity. For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

VC-54P BOARD **VC-55P** BOARD

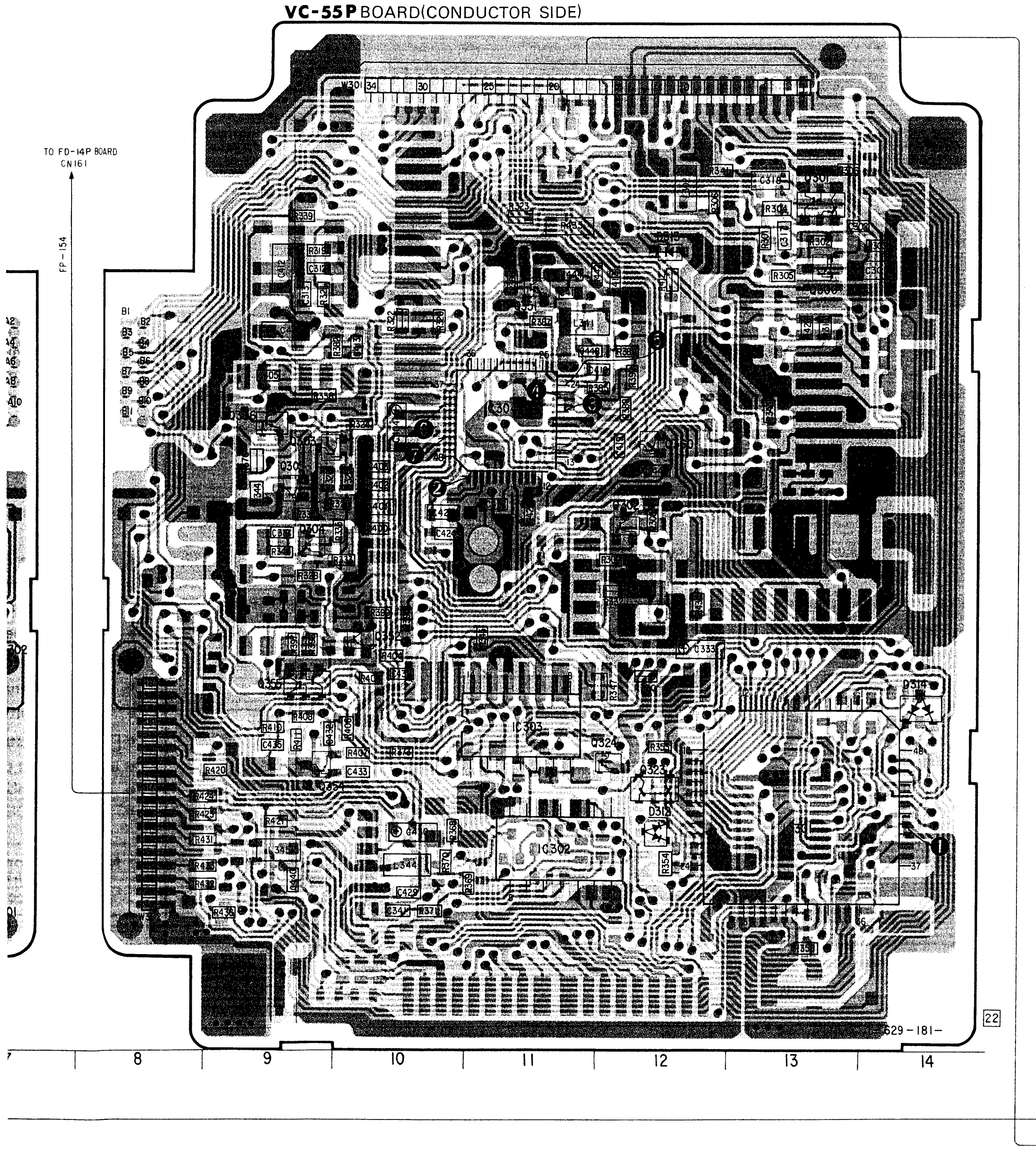


CD-13P (CCD IMAGER), VC-54P (SYNC GEN. , TIMING GEN.), VC-55P (CAMERA PROCESS, AUTO WHITE BALANCE, ENCODER) PRINTED WIRING BOARDS

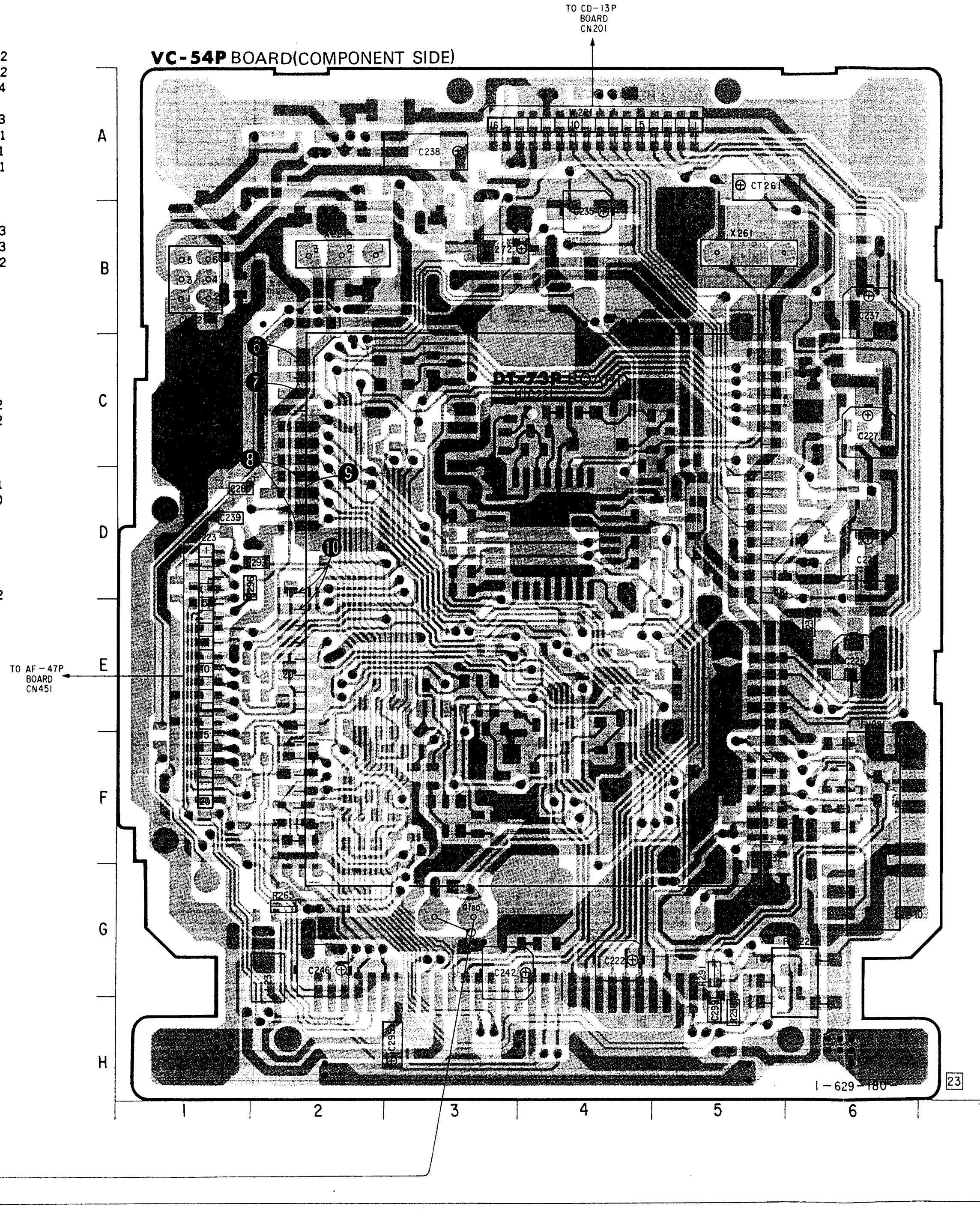
—Ref. No. VC-54P BOARD : 2000 series, CD-13P and VC-55P BOARDS : 4000 series—

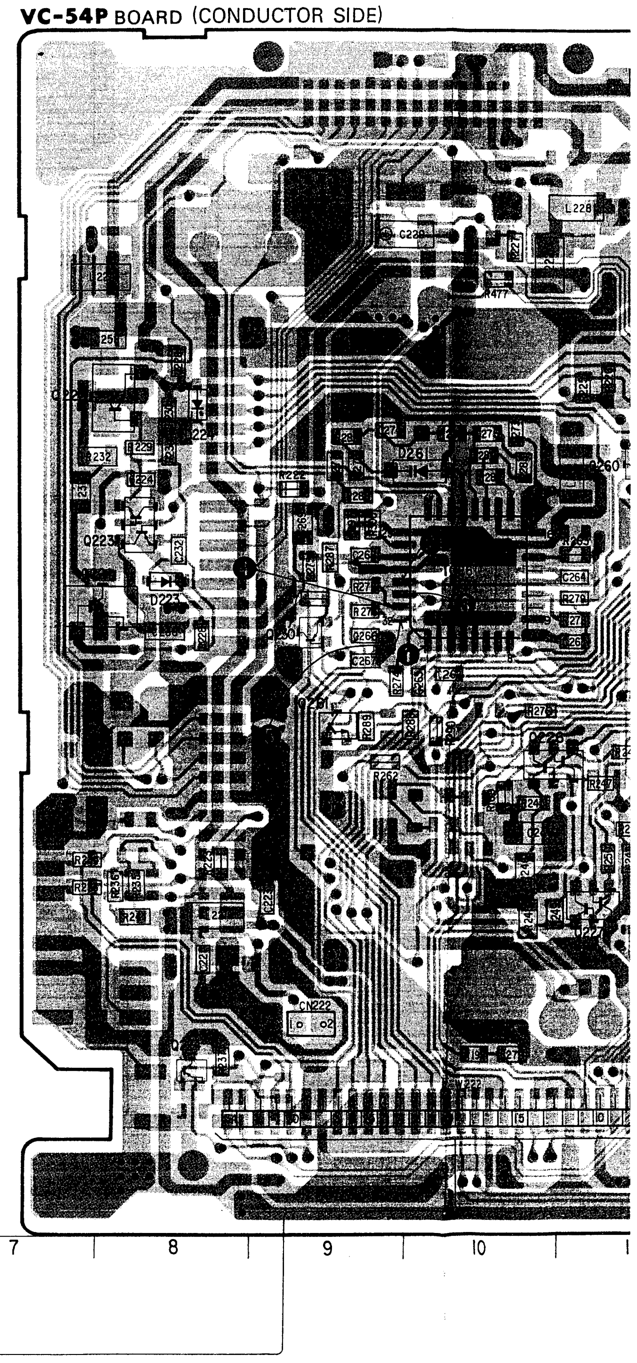

VC-55P BOARD (COMPONENT SIDE)
VC-55P BOARD(CONDUCTOR SIDE)
TO FD-14P BOARD CN161
MX-7P BOARD
DP-20P BOARD
1-629-181-
22
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

SS, AUTO WHITE BALANCE, ENCODER) PRINTED WIRING BOARDS


VC-55P BOARD(CONDUCTOR SIDE)
TO FD-14P BOARD CN161
FP-154
IC302
IC303
D312
D314
1-629-181-
22
8
9
10
11
12
13
14

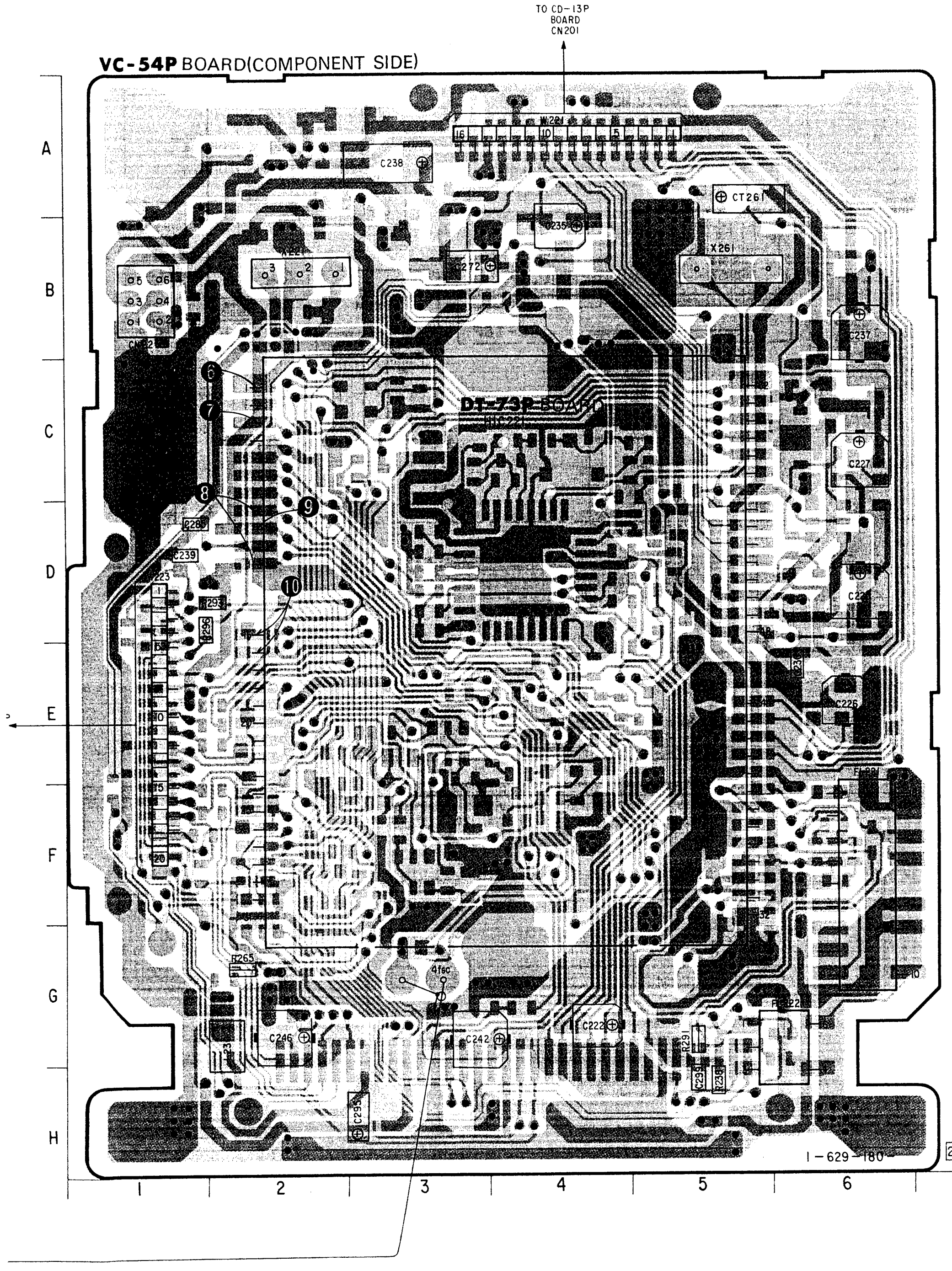
D312	G-12
D313	B-12
D314	F-14
IC301	F-13
IC302	G-11
IC303	F-11
IC304	C-11
IC305	F-2
IC306	G-5
Q300	B-13
Q301	B-13
Q302	D-12
Q303	D-9
Q304	D-9
Q305	D-9
Q306	C-9
Q307	B-1
Q308	D-4
Q321	F-1
Q322	F-1
Q323	F-12
Q324	F-12
Q325	G-4
Q326	G-4
Q327	G-5
Q351	B-11
Q352	E-10
Q354	F-9
Q355	F-9
Q356	F-1
Q358	C-4
Q359	C-4
Q360	D-12
Q361	A-4


TO CD-13P BOARD CN201
VC-54P BOARD(COMPONENT SIDE)
TO AF-47P BOARD CN451
DT-73P
X261
CT261
C238
1-629-180-
23
A
B
C
D
E
F
G
H
1
2
3
4
5
6

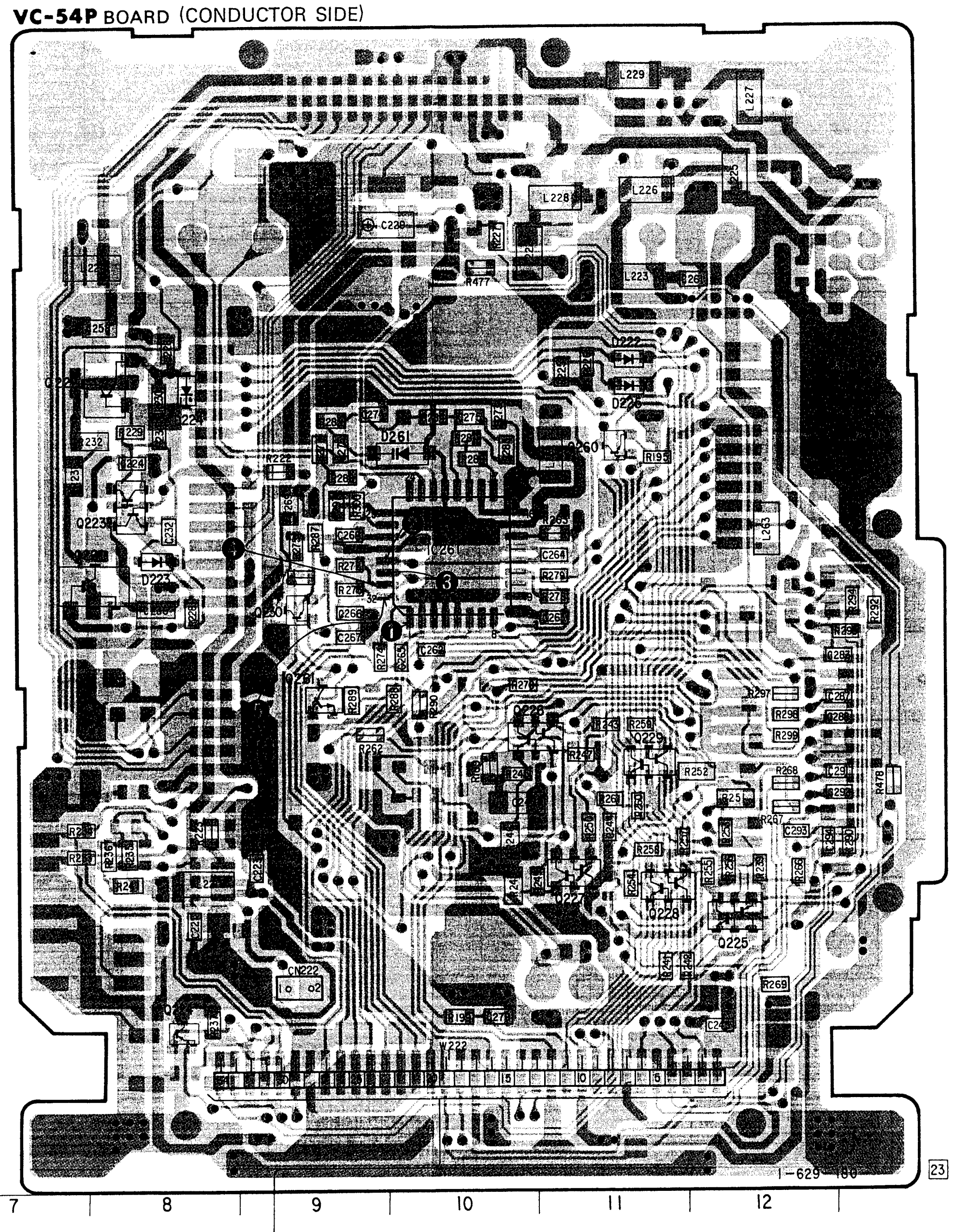

VC-54P BOARD (CONDUCTOR SIDE)
L228
CN222
7
8
9
10

Be sure to always read "Precautions for replacement of CCD imager block" in page 81 when replacing the CD-13P board, complete, DT-73P board, complete and CCD imager block (IC200 on the CD-13P board and IC005 on the DT-73P board).

VC-54P BOARD(COMPONENT SIDE)

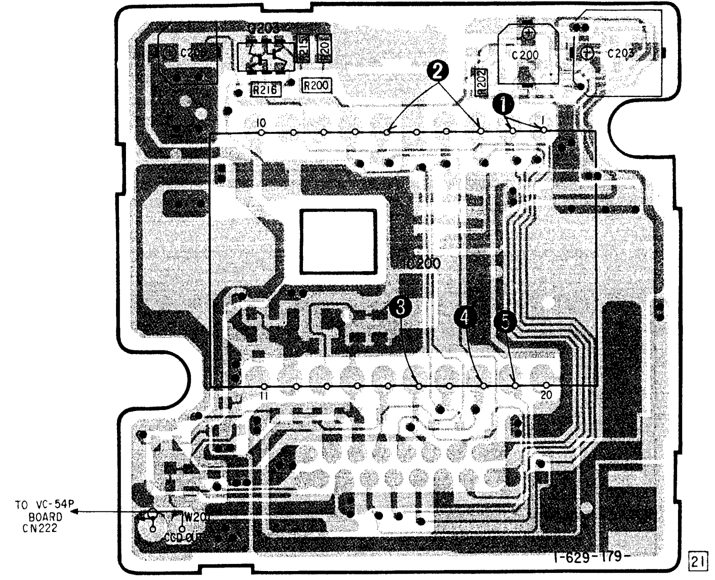

TO CD-13P BOARD CN201
A
B
C
D
E
F
G
H
1
2
3
4
5
6
C238
CT261
X261
DT-73P BOARD
1-629-180-
23

VC-54P BOARD (CONDUCTOR SIDE)

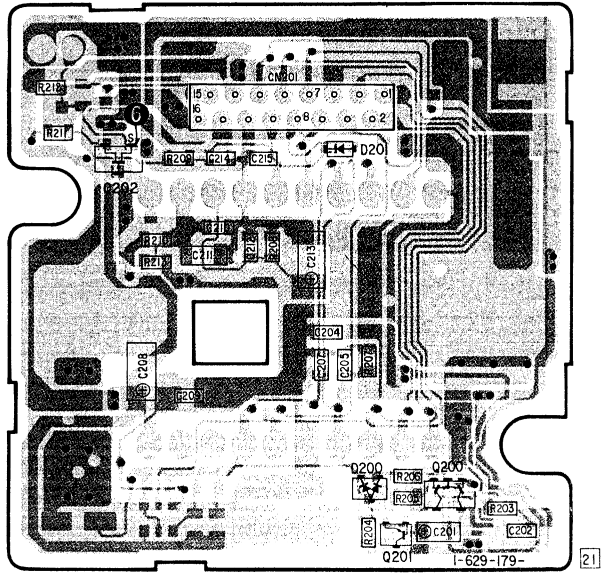

7
8
9
10
11
12
L229
L226
L228
L223
C228
R477
D261
Q260
IC261
D223
Q223
Q225
Q226
CN222
1-629-180
23

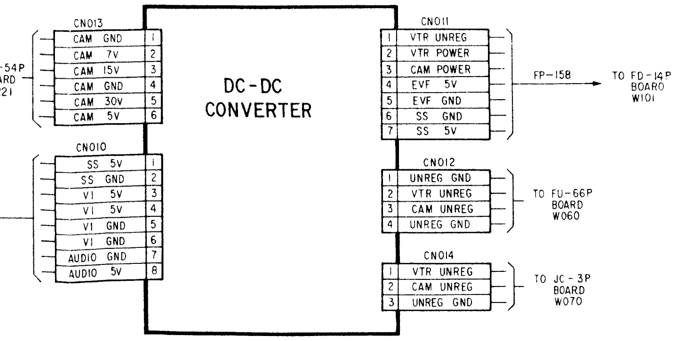
D222	C-11
D223	D-8
D224	C-8
D225	C-11
IC261	D-10
Q221	D-8
Q222	C-8
Q223	D-8
Q224	G-8
Q225	F-12
Q226	E-10
Q227	F-11
Q228	F-11
Q229	E-11
Q230	D-9
Q260	C-11

CD-13P BOARD(COMPONENT SIDE)


R218
R200
C200
C203
IC200
10
11
20
TO VC-54P BOARD CN222
1-629-179-
21

CD-13P BOARD (CONDUCTOR SIDE)

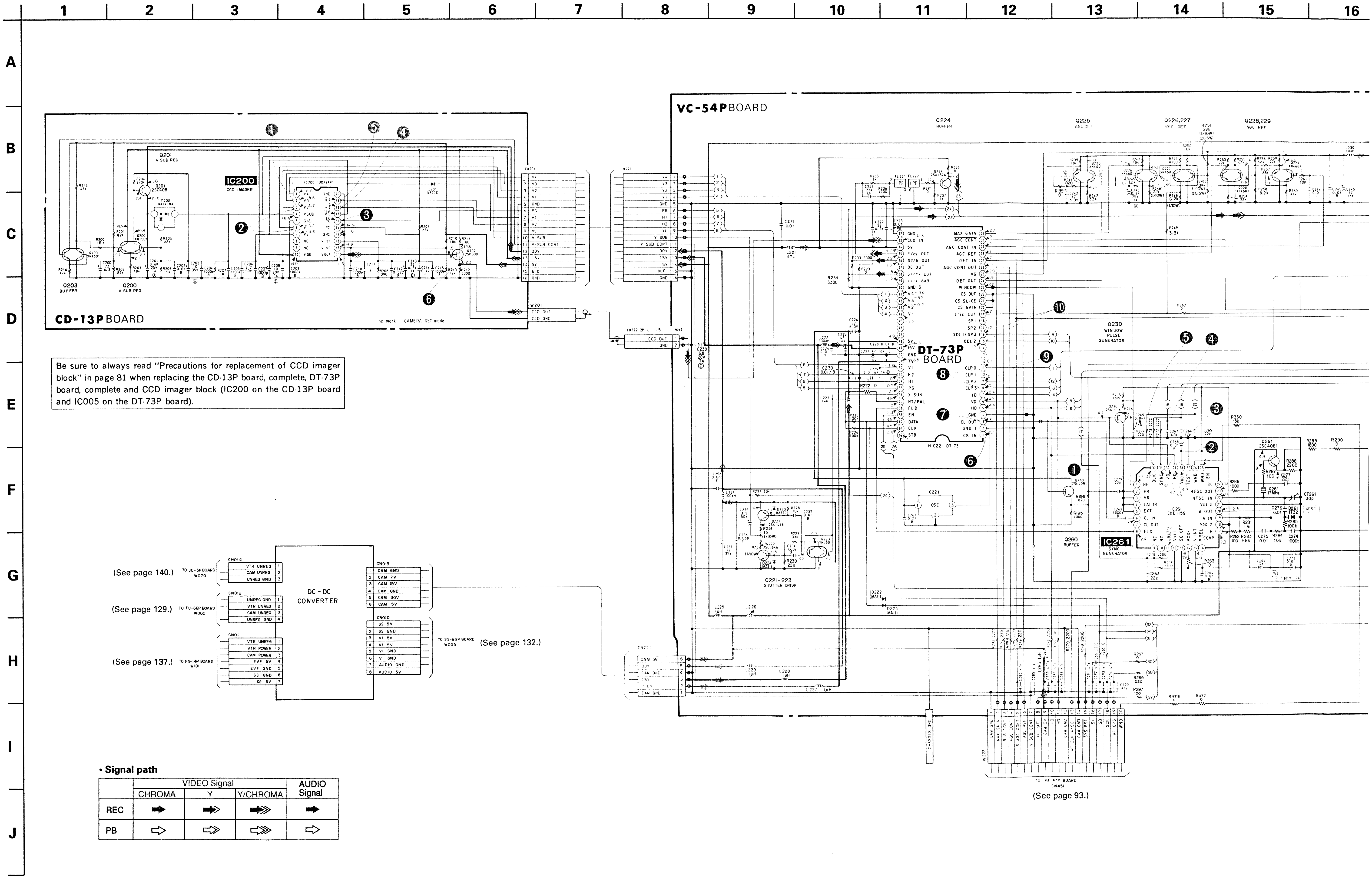

CN201
R212
R217
Q202
D201
C208
D200
Q200
R204
C201
C202
R203
Q201
1-629-179-
21


DC-DC CONVERTER
TO VC-54P BOARD CN221
CN013
CAM GND 1
CAM 7V 2
CAM 15V 3
CAM GND 4
CAM 30V 5
CAM 5V 6
TO SS-96P BOARD W005
FP-162
CN010
SS 5V 1
SS GND 2
VI 5V 3
VI 5V 4
VI GND 5
VI GND 6
AUDIO GND 7
AUDIO 5V 8
CN011
1 VTR UNREG
2 VTR POWER
3 CAM POWER
4 EVF 5V
5 EVF GND
6 SS GND
7 SS 5V
FP-158
TO FD-14P BOARD W101
CN012
1 UNREG GND
2 VTR UNREG
3 CAM UNREG
4 UNREG GND
TO FU-66P BOARD W060
CN014
1 VTR UNREG
2 CAM UNREG
3 UNREG GND
TO JC-3P BOARD W070

Be sure to always read "Precautions for replacement of CCD imager block" in page 81 when replacing the CD-13P board, complete, DT-73P board, complete and CCD imager block (IC200 on the CD-13P board and IC005 on the DT-73P board).

CD-13P (CCD IMAGER), VC-54P (SYNC GEN. , TIMING GEN.), VC-55P (CAMERA PROCESS, AUTO WHITE BALANCE, ENCODER) SCHEMATIC DIAGRAM

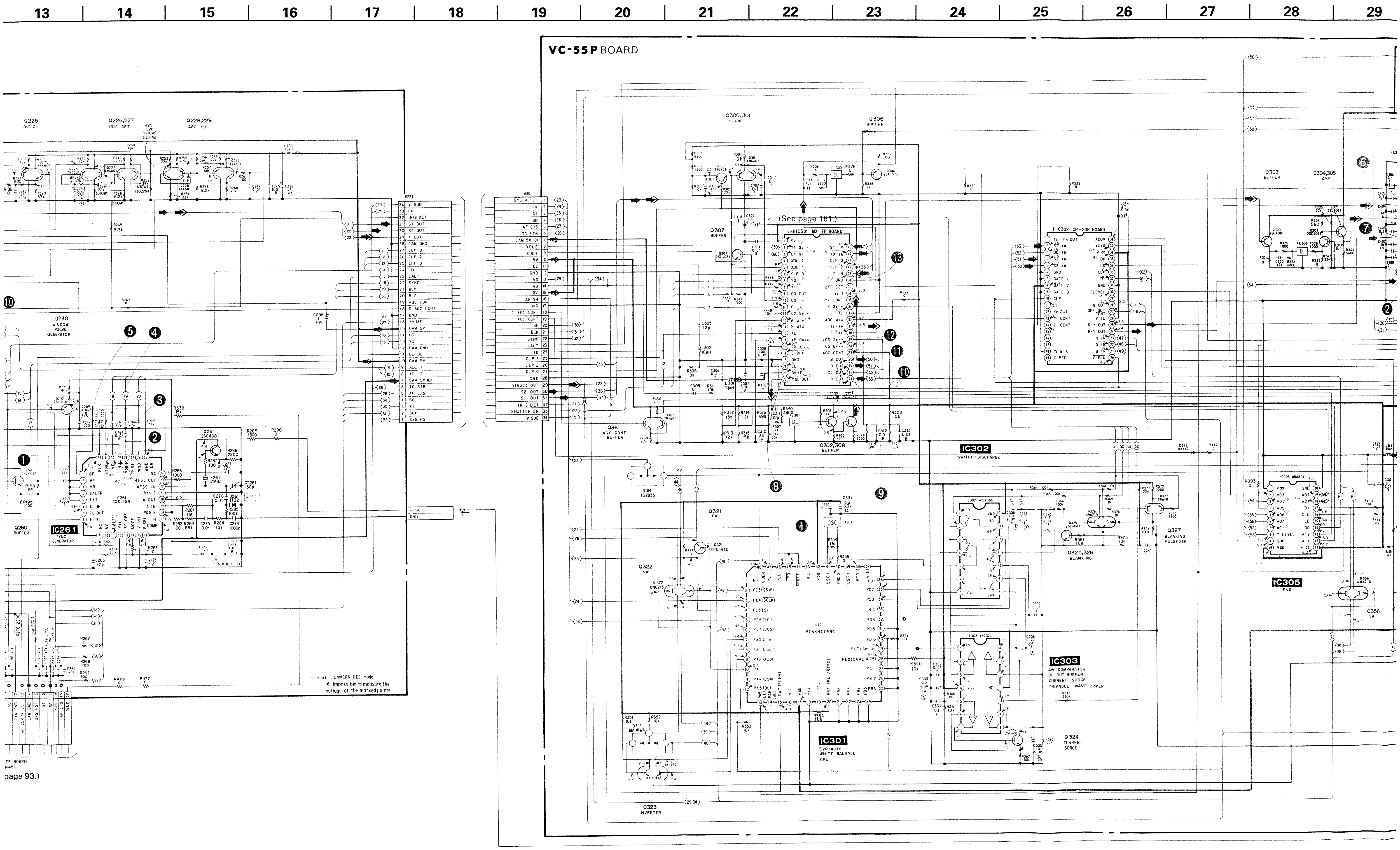
—Ref. No. VC-54P BOARD : 2000 series, CD-13P and VC-55P BOARDS : 4000 series—


CD-13P BOARD
IC200
CCD IMAGER
Q201
V SUB REG
Q203
BUFFER
Q200
V SUB REG
VC-54P BOARD
Q224
BUFFER
Q225
AGC DET
Q226,227
IRIS DET
Q228,229
AGC REF
DT-73P
BOARD
IC221 DT-73
Q230
WINDOW
PULSE
GENERATOR
Q260
BUFFER
IC261
SYNC
GENERATOR
Q221-223
SHUTTER DRIVE
DC - DC
CONVERTER
(See page 140.)
TO JC-3P BOARD W070
(See page 129.)
TO FU-56P BOARD W060
(See page 137.)
TO FD-14P BOARD W101
TO SS-95P BOARD W005
(See page 132.)
TO AF 47P BOARD CN451
(See page 93.)
no mark : CAMERA REC mode

Be sure to always read "Precautions for replacement of CCD imager block" in page 81 when replacing the CD-13P board, complete, DT-73P board, complete and CCD imager block (IC200 on the CD-13P board and IC005 on the DT-73P board).

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨


13
14
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18
19
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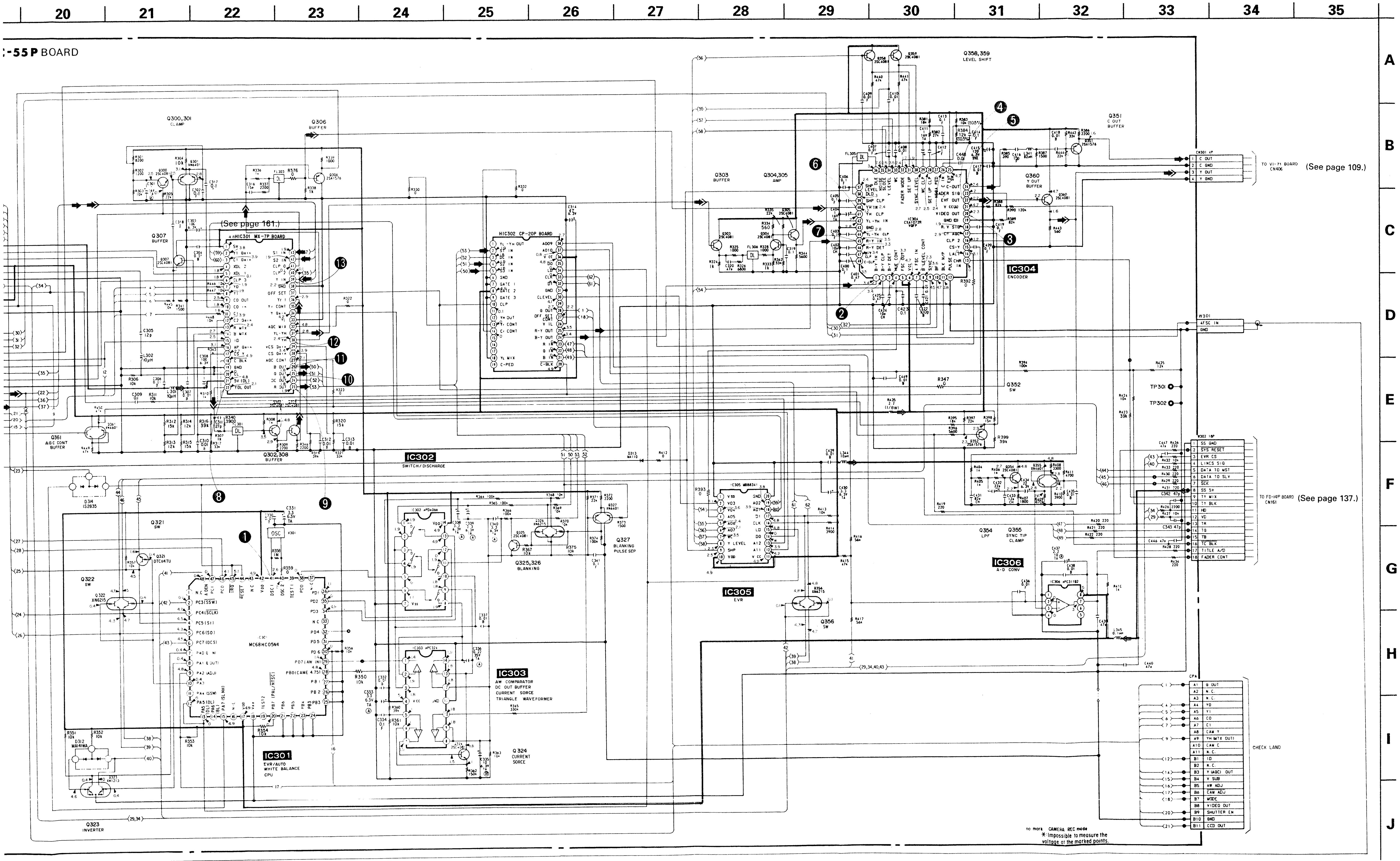
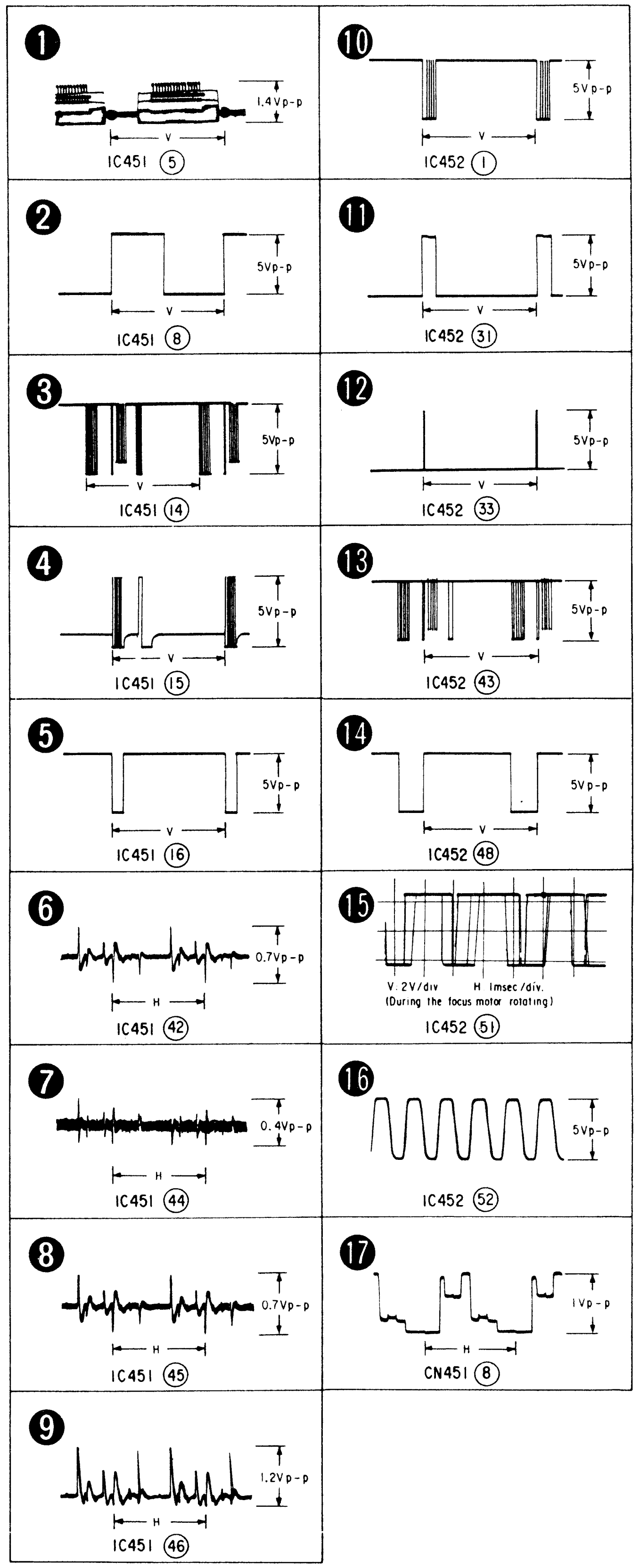
21
22
23
24
25
26
27
28
29
VC-55P BOARD
Q225 AGC DET
Q226,227 IRIS DET
Q228,229 AGC REF
Q230 WINDOW PULSE GENERATOR
Q260 BUFFER
IC261 SYNC GENERATOR
IC261 CXD1159
Q261 2SC4081
X261 17MHz
(See page 93.)
Q300,301 CLAMP
Q306 BUFFER
Q307 BUFFER
(See page 161.)
HIC301 MX-7P BOARD
HIC302 CP-20P BOARD
Q361 AGC CONT BUFFER
Q302,308 BUFFER
IC302 SWITCH/DISCHARGE
Q321 SW
Q322 SW
D314 1S2835
OSC
IC301 MC68HC05N4
IC301 EVR/AUTO WHITE BALANCE CPU
D312 MA141WA
Q323 INVERTER
Q325,326 BLANKING
Q327 BLANKING PULSE SEP
IC303 AW COMPARATOR DC OUT BUFFER CURRENT SORCE TRIANGLE WAVEFORMER
Q324 CURRENT SORCE
Q303 BUFFER
Q304,305 AMP
IC305 EVR
IC305 M68434
Q356 SW
no mark : CAMERA REC mode
* : Impossible to measure the voltage at the marked points.

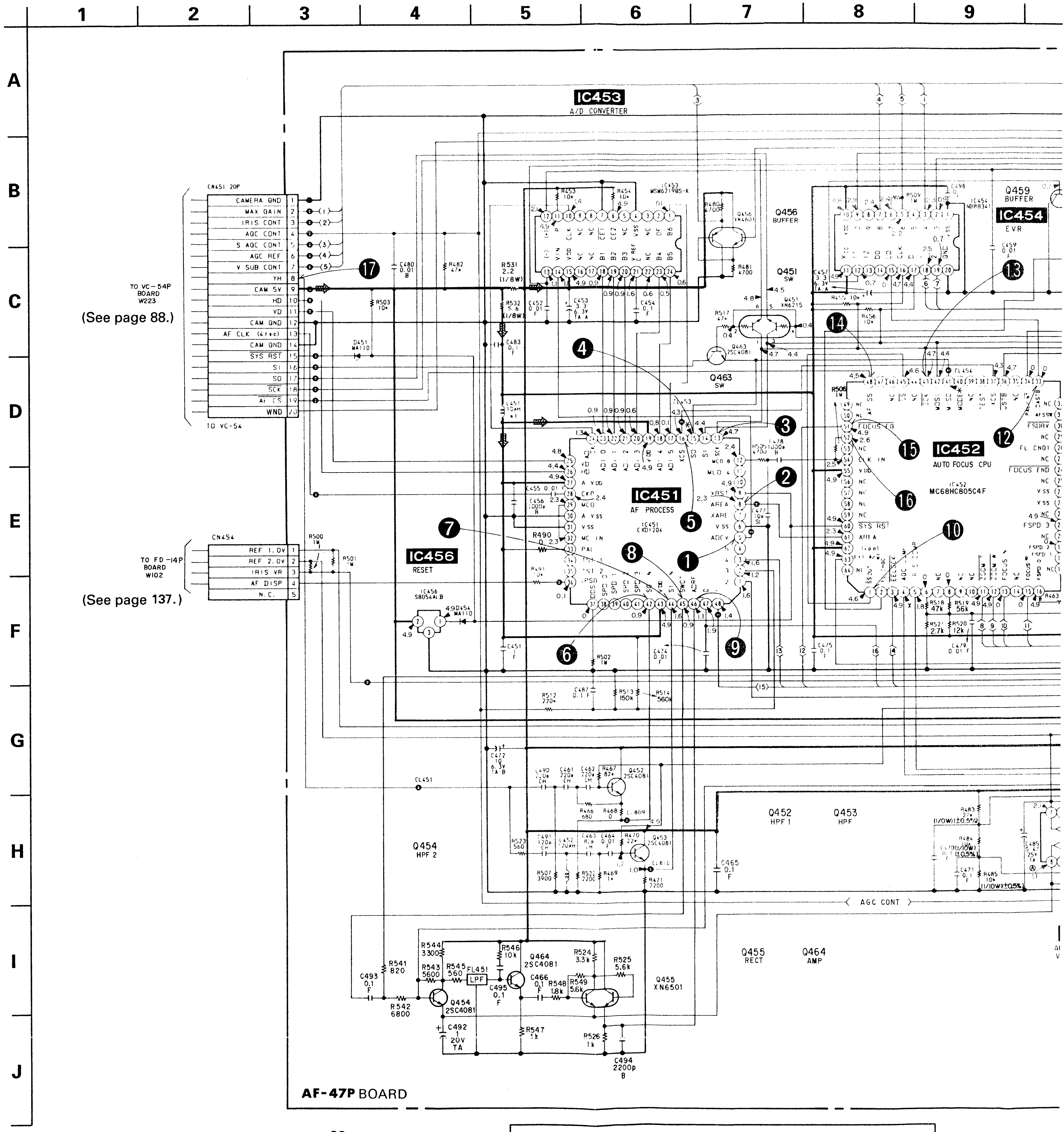

20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
-55 P BOARD
Q300,301 CLAMP
Q306 BUFFER
Q307 BUFFER
(See page 161.)
HIC301 MX-7P BOARD
HIC302 CP-20P BOARD
Q361 AGC CONT BUFFER
Q302,308 BUFFER
IC302 SWITCH/DISCHARGE
D314 1S2835
Q321 SW
Q322 SW
IC301 EVR/AUTO WHITE BALANCE CPU
MC68HC05N4
Q323 INVERTER
IC303 AW COMPARATOR DC OUT BUFFER CURRENT SORCE TRIANGLE WAVEFORMER
Q324 CURRENT SORCE
Q325,326 BLANKING
Q327 BLANKING PULSE SEP
Q358,359 LEVEL SHIFT
Q303 BUFFER
Q304,305 AMP
IC304 ENCODER
CXA1072R
Q351 C OUT BUFFER
Q360 Y OUT BUFFER
CN301 4P
C OUT
C GND
Y OUT
Y GND
TO VI-71 BOARD CN406
(See page 109.)
W301
4FSC IN
GND
Q352 SW
TP301
TP302
IC305 EVR
MB88341
Q356 SW
Q354 LPF
Q355 SYNC TIP CLAMP
IC306 A-D CONV
CN302 18P
SS GND
SYS RESET
EVR CS
LINCS SIG
DATA TO MST
DATA TO SLV
SCK
SS 5V
TY MIX
TY BLK
HD
VD
TR
TG
TB
TC BLK
TITLE A/D
FADER CONT
TO FD-14P BOARD CN161
(See page 137.)
CPA
B OUT
N.C.
N.C.
YO
Y1
CO
C1
CAM Y
YH (MTX OUT)
CAM C
N.C.
ID
N.C.
Y (AGC) OUT
Y SUB
AW ADJ
CAM ADJ
MODE
VIDEO OUT
SHUTTER EN
GND
CCD OUT
CHECK LAND

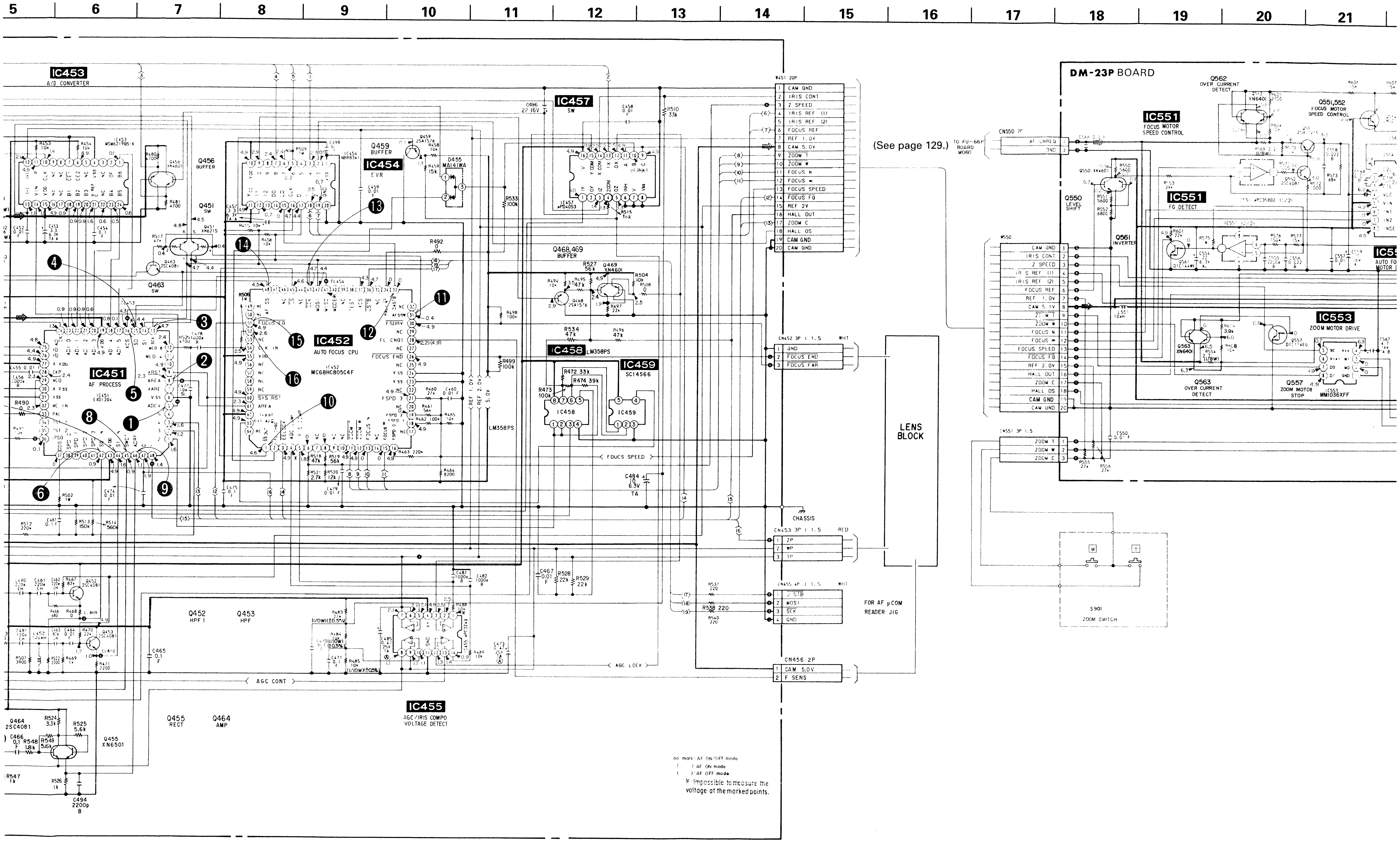
no mark : CAMERA REC mode
* Impossible to measure the voltage at the marked points.

AF-47P BOARD

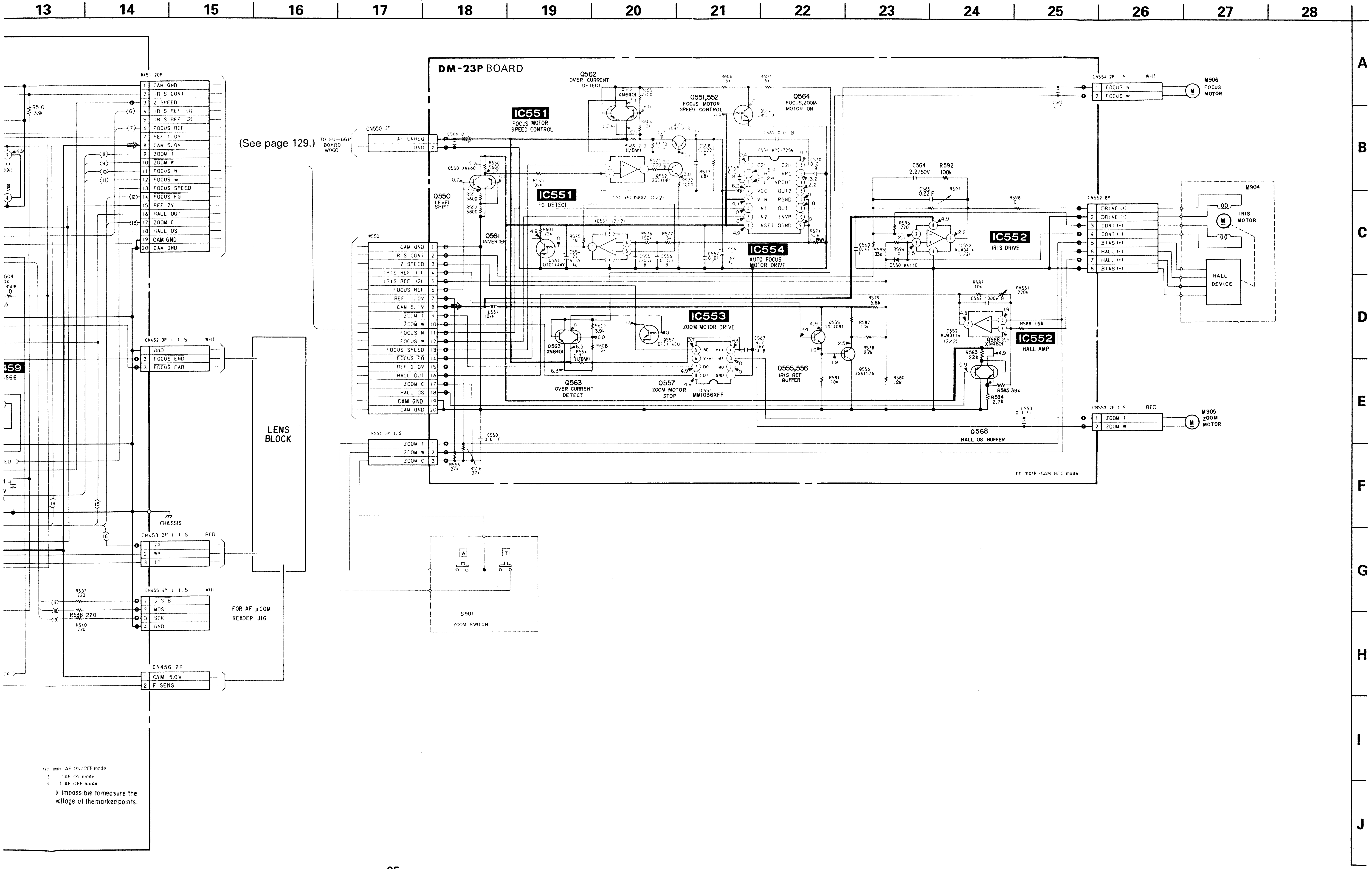


AF-47P (AUTO FOCUS), DM-23P (FOCUS/IRIS/ZOOM MOTOR DRIVE) SCHEMATIC DIAGRAM
—Ref. No. DM-23P BOARD: 2000 series, AF-47P BOARD: 5000 series—


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
IC453
A/D CONVERTER
IC451
AF PROCESS
IC452
AUTO FOCUS CPU
MC68HC805C4F
IC454
EVR
IC456
RESET
Q459
BUFFER
Q456
BUFFER
Q451
SW
Q463
SW
Q452
HPF 1
Q453
HPF
Q454
HPF 2
Q455
RECT
Q464
AMP
CN451 20P
CAMERA GND
MAX GAIN
IRIS CONT
AGC CONT
S AGC CONT
AGC REF
V SUB CONT
YH
CAM 5V
HD
VD
CAM GND
AF CLK
CAM GND
SYS RST
SI
SO
SCK
AF CS
WND
TO VC-54P BOARD W223
(See page 88.)
CN454
REF 1.0V
REF 2.0V
IRIS VR
AF DISP
N.C.
TO FD-14P BOARD W102
(See page 137.)
AGC CONT
LPF
AF-47P BOARD


5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
IC453
A/D CONVERTER
IC457
SW
Q459
BUFFER
IC454
EVR
D455
MA141WA
Q456
BUFFER
Q451
SW
Q463
SW
IC451
AF PROCESS
IC452
AUTO FOCUS CPU
MC68HC805C4F
Q468,469
BUFFER
IC458
LM358PS
IC459
SC14S66
LM358PS
CN451 20P
CAM GND
IRIS CONT
Z SPEED
IRIS REF (1)
IRIS REF (2)
FOCUS REF
REF 1.0V
CAM 5.0V
ZOOM T
ZOOM W
FOCUS N
FOCUS ∞
FOCUS SPEED
FOCUS FG
REF 2V
HALL OUT
ZOOM C
HALL OS
CAM GND
CAM GND
(See page 129.)
TO FU-66P BOARD W060
CN452 3P
GND
FOCUS END
FOCUS FAR
LENS BLOCK
FOUCS SPEED
CHASSIS
CN453 3P
RED
ZP
WP
TP
CN455 4P
WHT
J STB
MOSI
SCK
GND
FOR AF μCOM READER JIG
CN456 2P
CAM 5.0V
F SENS
AGC LOCK
AGC CONT
Q452
HPF 1
Q453
HPF
IC455
AGC/IRIS COMPO VOLTAGE DETECT
Q455
RECT
Q464
AMP
Q464
2SC4081
Q455
XN6501
DM-23P BOARD
Q562
OVER CURRENT DETECT
IC551
FOCUS MOTOR SPEED CONTROL
Q551,552
FOCUS MOTOR SPEED CONTROL
CN550 2P
AF UNREG
GND
Q550
LEVEL SHIFT
IC551
FG DETECT
Q561
INVERTER
IC553
ZOOM MOTOR DRIVE
Q563
OVER CURRENT DETECT
Q557
ZOOM MOTOR STOP
IC553
MM1036XFF
CN551 3P
ZOOM T
ZOOM W
ZOOM C
S901
ZOOM SWITCH
W
T
no mark: AF ON/OFF mode
( ): AF ON mode
< >: AF OFF mode
✻: Impossible to measure the voltage at the marked points.

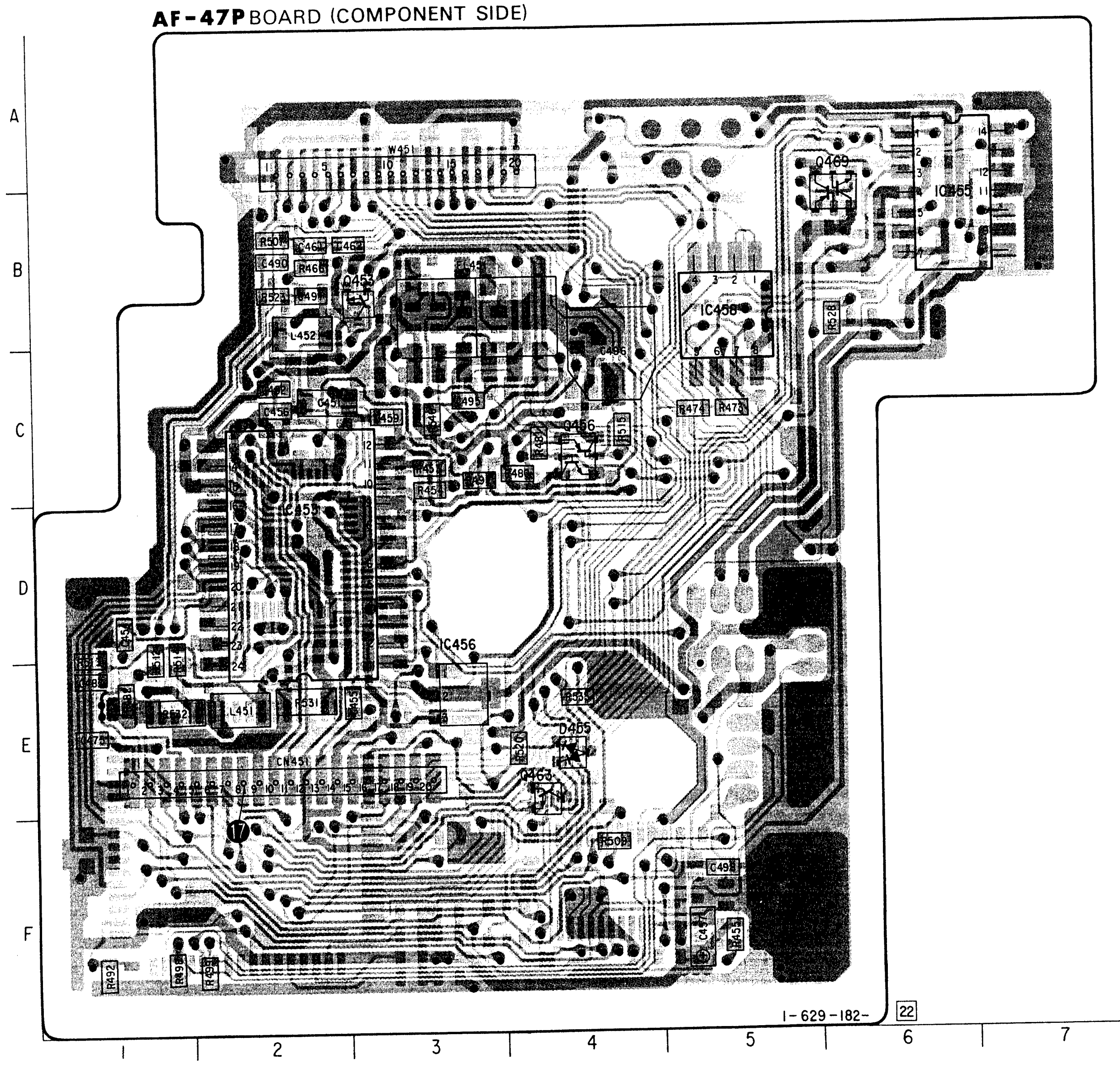
AUTO FOCUS AUTO FOCUS


13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
I
J
DM-23P BOARD
W451 20P
CAM GND
IRIS CONT
Z SPEED
IRIS REF (1)
IRIS REF (2)
FOCUS REF
REF 1.0V
CAM 5.0V
ZOOM T
ZOOM W
FOCUS N
FOCUS ∞
FOCUS SPEED
FOCUS FG
REF 2V
HALL OUT
ZOOM C
HALL OS
CAM GND
CAM GND
R510 33k
(See page 129.)
TO FU-66P BOARD W060
CN550 2P
AF UNREG
GND
W550
CN452 3P I 1.5 WHT
GND
FOCUS END
FOCUS FAR
LENS BLOCK
CHASSIS
CN453 3P I 1.5 RED
ZP
WP
TP
CN455 4P I 1.5 WHT
J STB
MOSI
SCK
GND
FOR AF μCOM READER JIG
R537 220
R538 220
R540 220
CN456 2P
CAM 5.0V
F SENS
CN551 3P I 1.5
ZOOM T
ZOOM W
ZOOM C
R555 27k
R556 27k
C550 0.01 F
S901
ZOOM SWITCH
W
T
Q562 OVER CURRENT DETECT
XN6401
IC551 FOCUS MOTOR SPEED CONTROL
Q551,552 FOCUS MOTOR SPEED CONTROL
Q564 FOCUS,ZOOM MOTOR ON
Q550 XN4601
Q550 LEVEL SHIFT
R551 5600
R552 6800
IC551 FG DETECT
IC551 μPC358G2 (1/2)
IC551 (2/2)
Q561 INVERTER
Q561 DTC144WK
C554 22 6.3V
C555 0.022 B
C556 0.022 B
Q552 2SC4081
R573 68k
IC554 μPC1725M
C2H
VPC
VPCUT
VCC
OUT2
VIN
POND
OUT1
IN1
INVP
IN2
INSET
DGND
IC554 AUTO FOCUS MOTOR DRIVE
C557 0.01 F
R574 5.6 (1/8W)
C564 2.2/50V
R592 100k
C565 0.22 F
R597
R598
R596 220
R595 33k
R594
IC552 NJM3414 (1/2)
IC552 IRIS DRIVE
Q550 MA110
CN554 2P S WHT
FOCUS N
FOCUS ∞
M906 FOCUS MOTOR
CN552 8P
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (-)
HALL (+)
BIAS (-)
M904
IRIS MOTOR
HALL DEVICE
R587 10k
RV551 220k
C562 1000p B
R579 5.6k
IC553 ZOOM MOTOR DRIVE
Q563 XN6401
R554 1 (1/8W)
Q563 OVER CURRENT DETECT
Q557 DTC114EU
Q557 ZOOM MOTOR STOP
IC553 MM1036XFF
Q555 2SC4081
R582 10k
R578 2.7k
Q556 2SA1576
Q555,556 IRIS REF BUFFER
R581 10k
R580 12k
IC552 NJM3414 (2/2)
Q568 XN4601
R588 1.5k
IC552 HALL AMP
R583 22k
R585 39k
R584 2.7k
Q568 HALL OS BUFFER
C553 0.1 F
CN553 2P I 1.5 RED
ZOOM T
ZOOM W
M905 ZOOM MOTOR
no mark : CAM REC mode
no mark : AF ON/OFF mode
( ) : AF ON mode
< > : AF OFF mode
*: impossible to measure the voltage at the marked points.

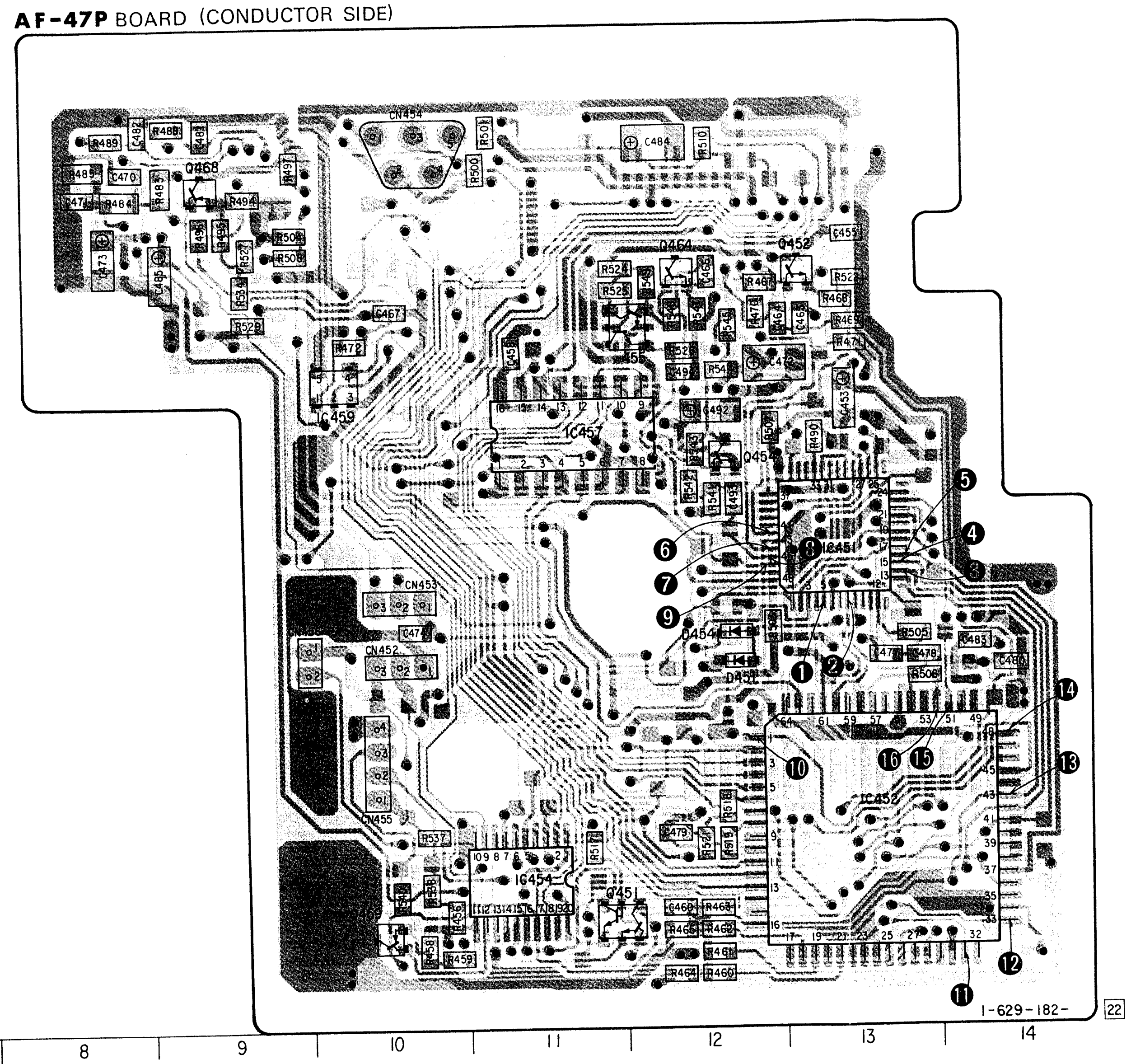
AF-47P (AUTO FOCUS), DM-23P (FOCUS/IRIS/ZOOM MOTOR DRIVE) PRINTED WIRING BOARDS

—Ref. No. DM-23P BOARD : 2000 series, AF-47P BOARD : 5000 series—

AF-47P BOARD (COMPONENT SIDE)

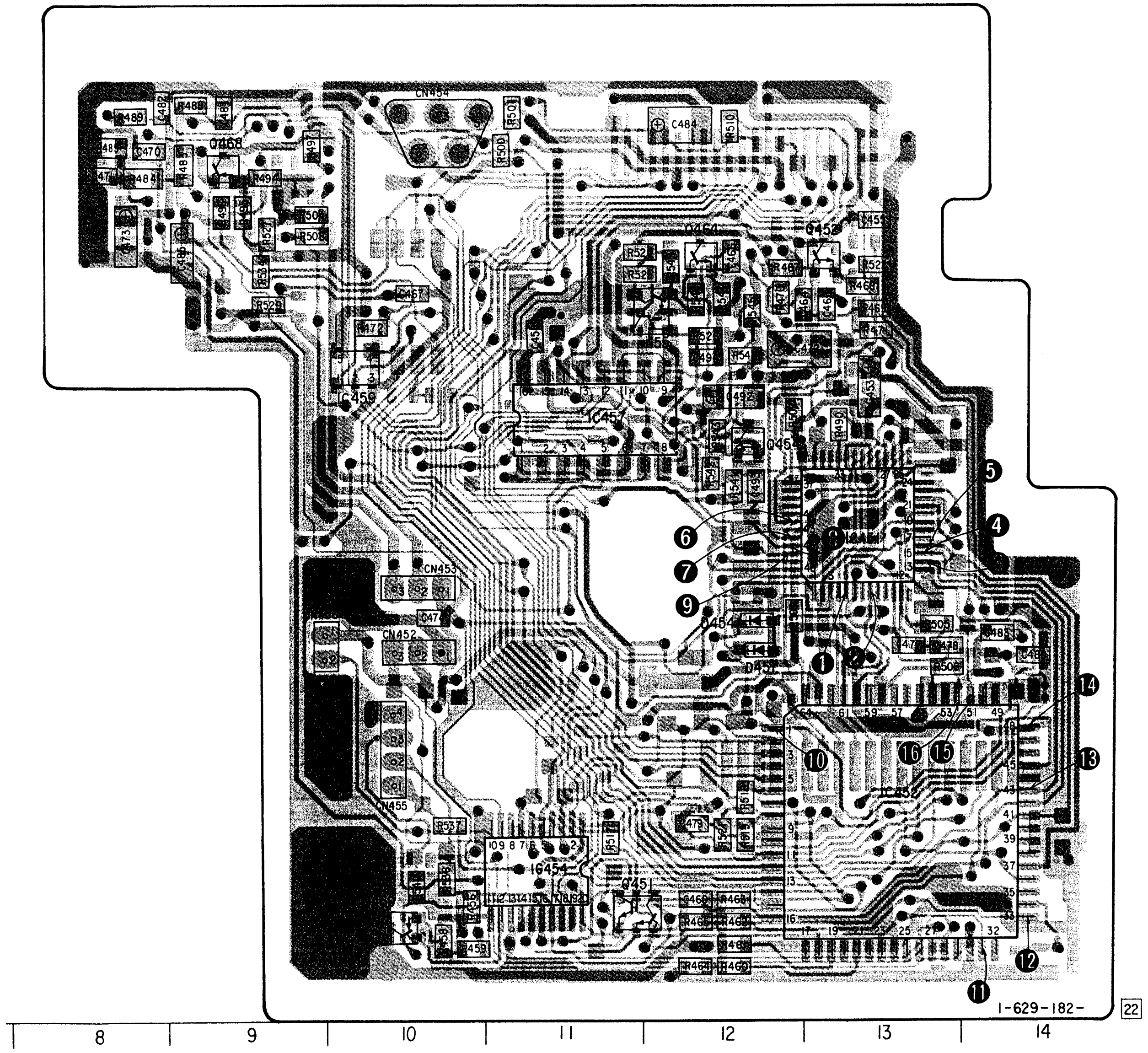

A
B
C
D
E
F
1
2
3
4
5
6
IC453
IC455
IC456
IC458
Q453
Q456
Q463
Q469
D455
CN451
W451
L451
L452
17
1-629-182-
22

AF-47P BOARD (CONDUCTOR SIDE)


7
8
9
10
11
12
13
14
CN452
CN453
CN454
CN455
IC451
IC452
IC454
IC457
IC459
Q451
Q452
Q454
Q455
Q459
Q464
Q468
D451
D454
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
1-629-182-
22

D451	E-12
D454	D-12
D455	E-4
IC451	D-13
IC452	F-13
IC453	D-2
IC454	F-11
IC455	B-6
IC456	E-3
IC457	C-11
IC458	B-5
IC459	C-10
Q451	F-11
Q452	B-13
Q453	B-3
Q454	C-12
Q455	B-12
Q456	C-4
Q459	F-10
Q463	E-4
Q464	B-12
Q468	B-9
Q469	B-6

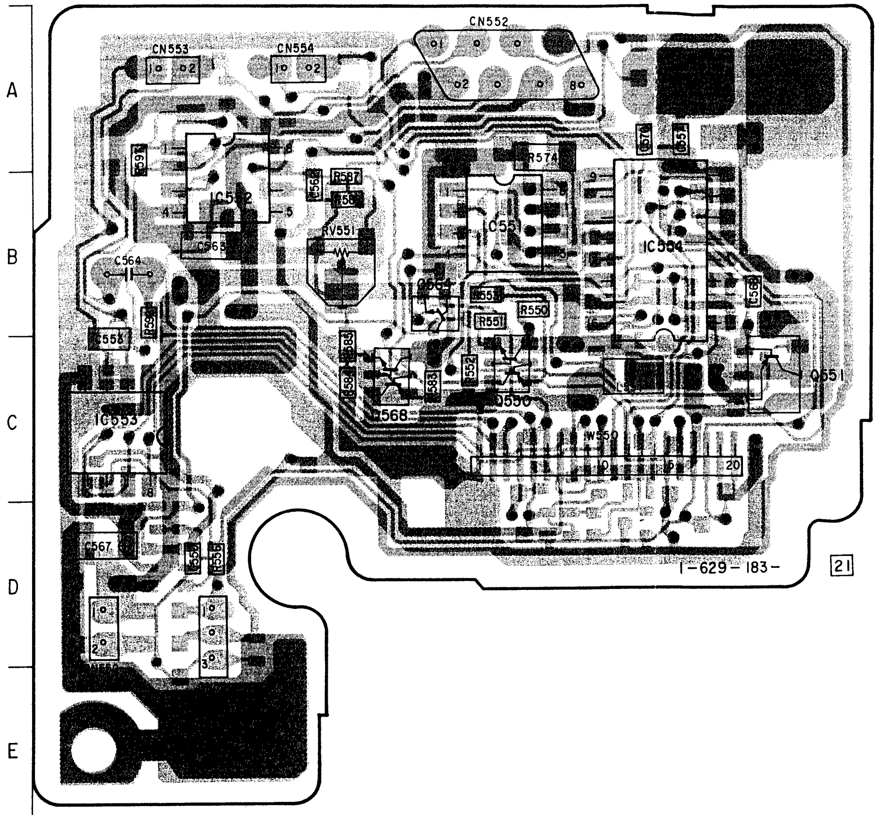
AF-47P BOARD (CONDUCTOR SIDE)



CN454
CN453
CN452
CN455
IC459
IC457
IC454
Q468
Q451
Q452
Q454
D454
D451
1-629-182-
22
8
9
10
11
12
13
14

D451	E-12
D454	D-12
D455	E-4
IC451	D-13
IC452	F-13
IC453	D-2
IC454	F-11
IC455	B-6
IC456	E-3
IC457	C-11
IC458	B-5
IC459	C-10
Q451	F-11
Q452	B-13
Q453	B-3
Q454	C-12
Q455	B-12
Q456	C-4
Q459	F-10
Q463	E-4
Q464	B-12
Q468	B-9
Q469	B-6

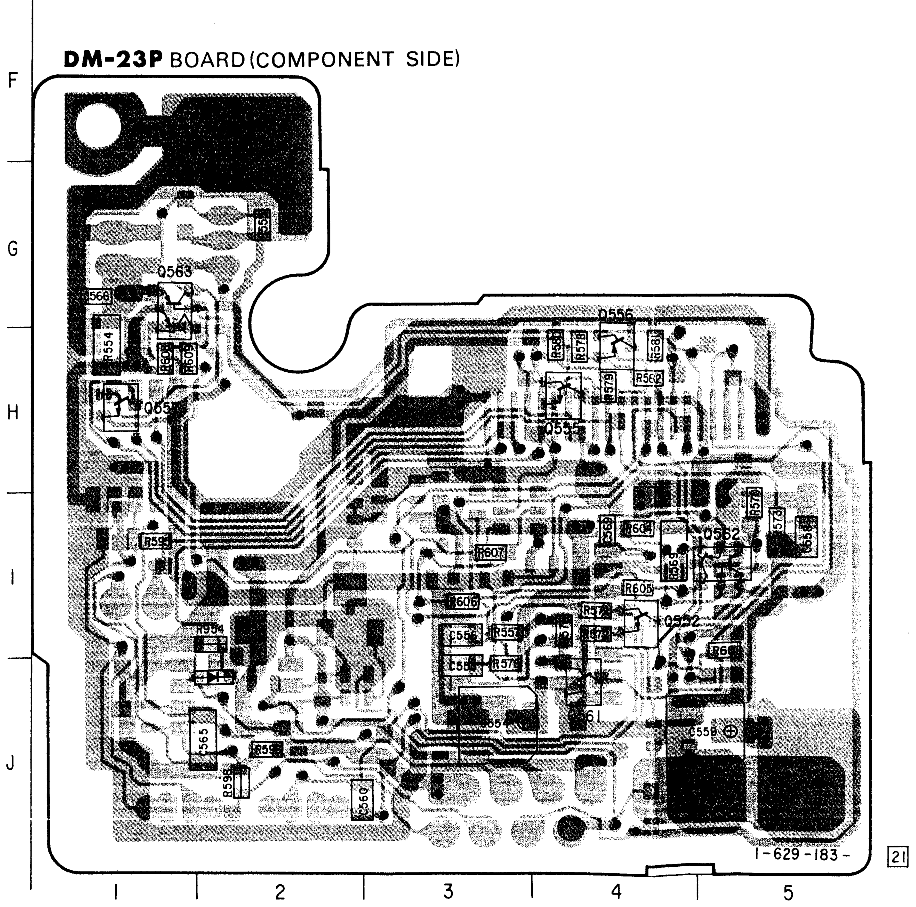
DM-23P BOARD (CONDUCTOR SIDE)



CN552
CN553
CN554
IC552
IC551
IC554
IC553
RV551
Q568
Q550
Q551
1-629-183-
21
A
B
C
D
E

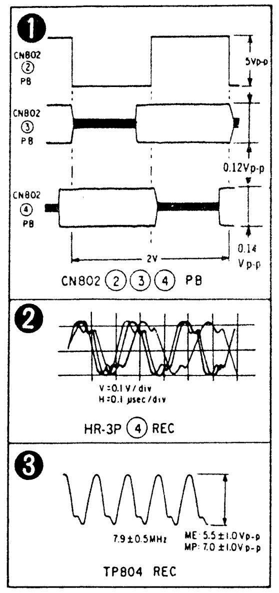
D550	J-1
IC551	B-3
IC552	B-2
IC553	C-1
IC554	B-4
Q550	C-3
Q551	C-5
Q552	I-4
Q555	H-4
Q556	H-4
Q557	H-1
Q561	J-4
Q562	I-5
Q563	G-1
Q564	B-3
Q568	C-3

DM-23P BOARD (COMPONENT SIDE)



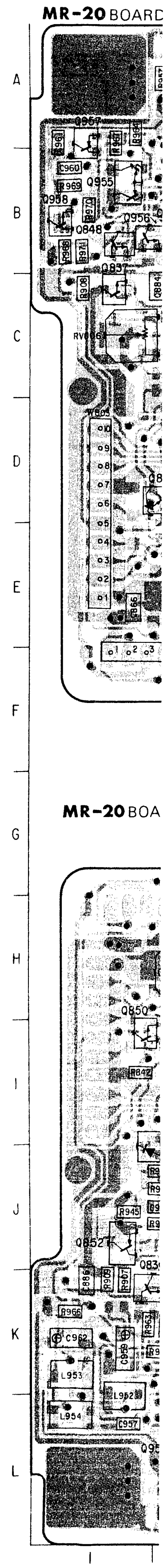
Q563
Q557
Q556
Q555
Q562
Q552
Q561
C559
1-629-183-
21
F
G
H
I
J
1
2
3
4
5

MR-20 BOARD

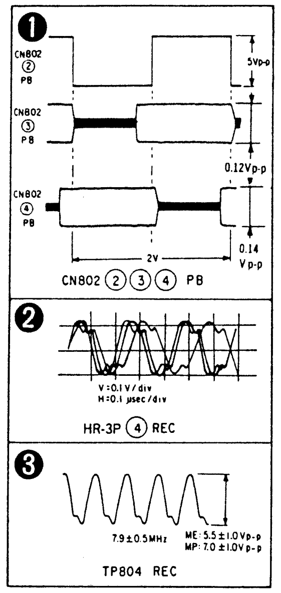


D801	A-6
D802	B-6
D804	A-3
D805	B-3
D806	D-2
D807	C-10
D808	B-3
D810	B-3
D811	A-3
D812	A-3
D813	A-3
D814	J-1
IC801	A-4
IC802	L-7
Q801	I-5
Q802	I-5
Q803	D-5
Q804	C-5
Q805	C-5
Q806	J-5
Q807	H-4
Q808	E-4
Q809	F-4
Q810	E-5
Q811	C-9
Q812	A-7
Q813	A-6
Q814	B-7
Q815	L-5
Q817	A-6
Q819	B-3
Q820	H-3
Q821	D-3
Q822	D-3
Q823	J-3
Q824	J-3
Q825	D-2
Q826	E-2
Q827	E-2
Q828	L-6
Q829	B-10
Q830	C-10
Q831	C-9
Q832	J-9
Q833	L-4
Q836	K-2
Q837	C-1
Q838	B-9
Q839	L-8
Q840	A-8
Q841	A-8
Q842	L-3
Q843	K-2
Q844	B-2
Q847	A-3
Q848	B-1
Q849	K-5
Q850	I-1
Q851	C-2
Q852	J-1
Q951	A-2
Q952	L-2
Q953	B-2
Q954	B-2
Q955	B-1
Q956	B-1
Q957	A-1
Q958	B-1
Q959	L-2

MR-20 (REC/
—Ref. No. MR


MR-20 BOARD
A
B
C
D
E
F
G
H
I
J
K
L
MR-20 BOA
Q951
Q955
Q958
Q848
Q837
RV806
Q850
R842
Q852
C962
L953
L954
L952
Q957

MR-20 BOARD

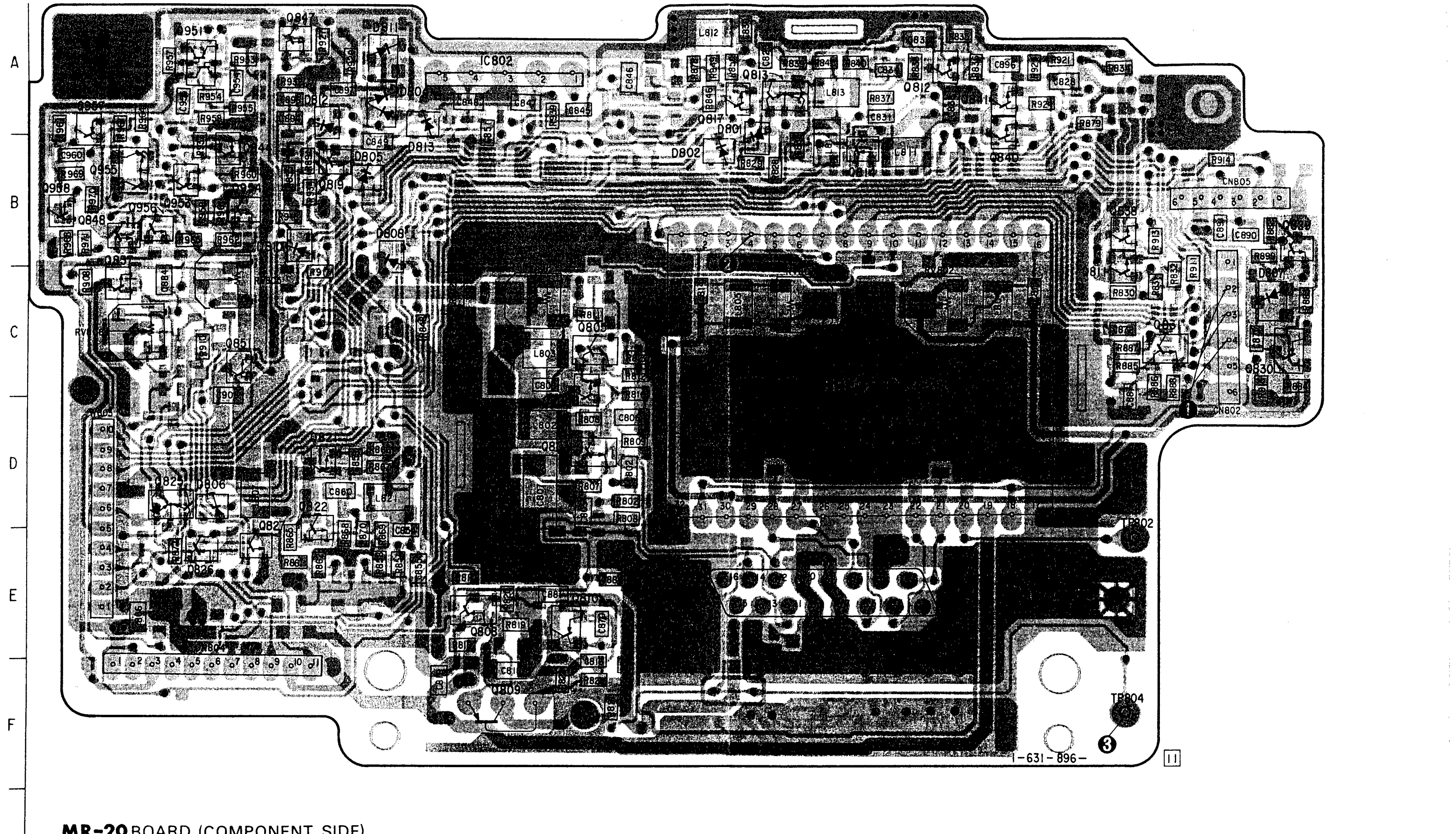


D801	A-6
D802	B-6
D804	A-3
D805	B-3
D806	D-2
D807	C-10
D808	B-3
D810	B-3
D811	A-3
D812	A-3
D813	A-3
D814	J-1
IC801	A-4
IC802	L-7
Q801	I-5
Q802	I-5
Q803	D-5
Q804	C-5
Q805	C-5
Q806	J-5
Q807	H-4
Q808	E-4
Q809	F-4
Q810	E-5
Q811	C-9
Q812	A-7
Q813	A-6
Q814	B-7
Q815	L-5
Q817	A-6
Q819	B-3
Q820	H-3
Q821	D-3
Q822	D-3
Q823	J-3
Q824	J-3
Q825	D-2
Q826	E-2
Q827	E-2
Q828	L-6
Q829	B-10
Q830	C-10
Q831	C-9
Q832	J-9
Q833	L-4
Q836	K-2
Q837	C-1
Q838	B-9
Q839	L-8
Q840	A-8
Q841	A-8
Q842	L-3
Q843	K-2
Q844	B-2
Q847	A-3
Q848	B-1
Q849	K-5
Q850	I-1
Q851	C-2
Q852	J-1
Q951	A-2
Q952	L-2
Q953	B-2
Q954	B-2
Q955	B-1
Q956	B-1
Q957	A-1
Q958	B-1
Q959	L-2

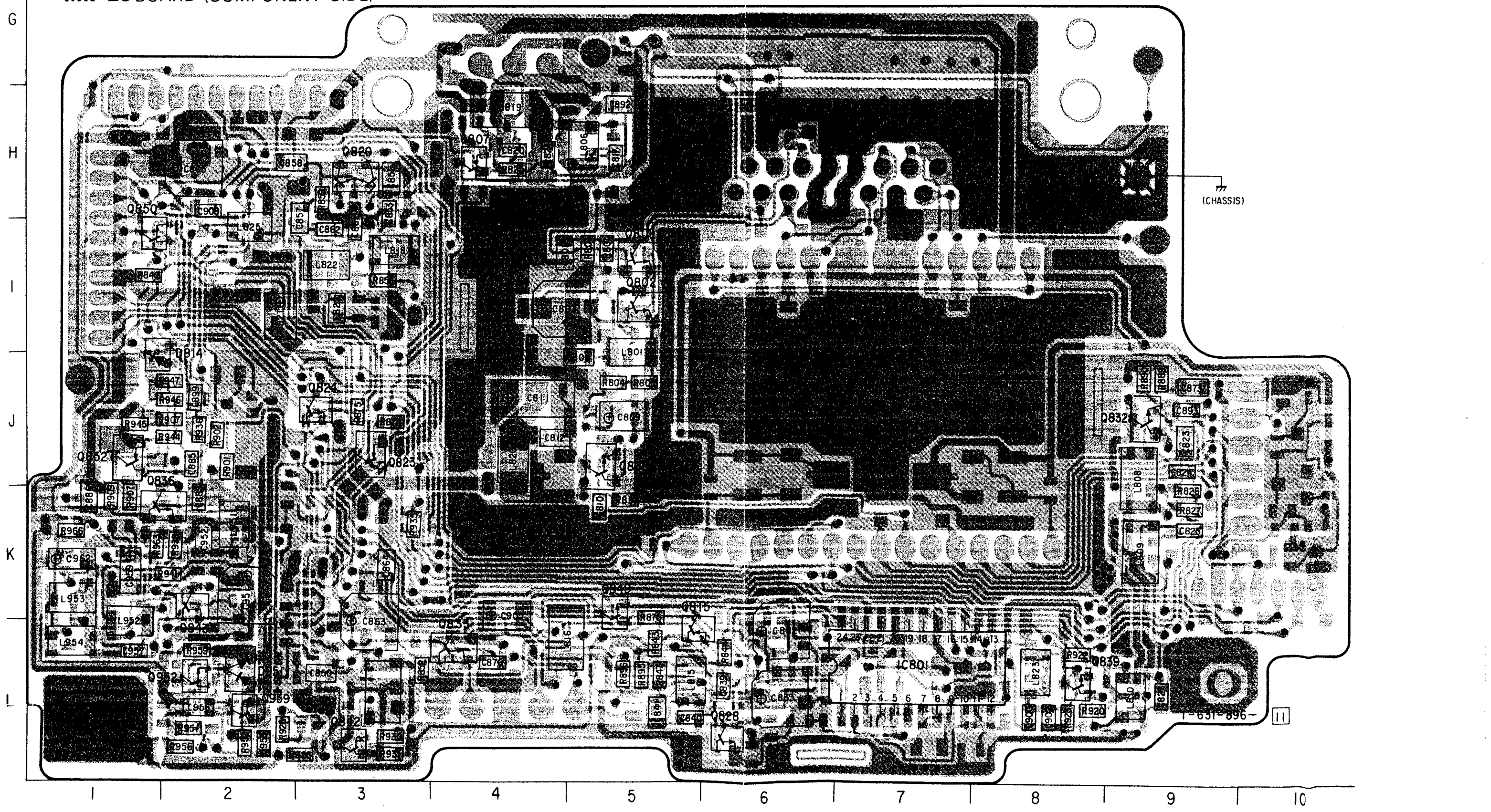
MR-20 (REC/PB AMP, REC Y/C/AFM/ATF MIX) PRINTED WIRING BOARD

—Ref. No. MR-20 BOARD: 1000 series—

MR-20 BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
IC802
D802
Q806
TP802
TP804
❸
CN802
CN805
1-631-896-11

MR-20 BOARD (COMPONENT SIDE)


G
H
I
J
K
L
(CHASSIS)
IC801
L801
Q829
Q832
1-631-896-11
1
2
3
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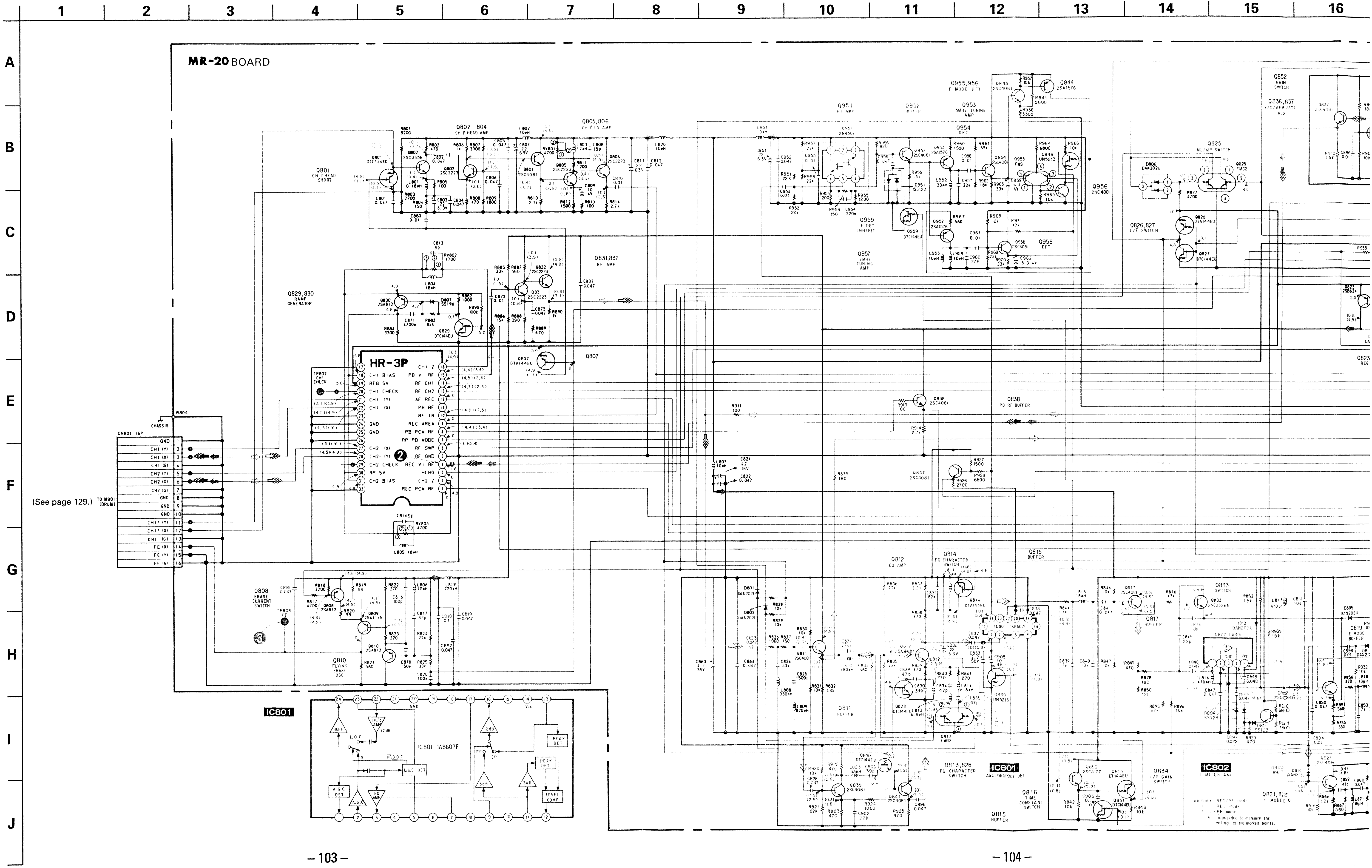
6
7
8
9
10

MR-20 (REC/PB AMP, REC Y/C/AFM/ATF MIX) SCHEMATIC DIAGRAM

—Ref. No. MR-20 BOARD: 1000 series—


1
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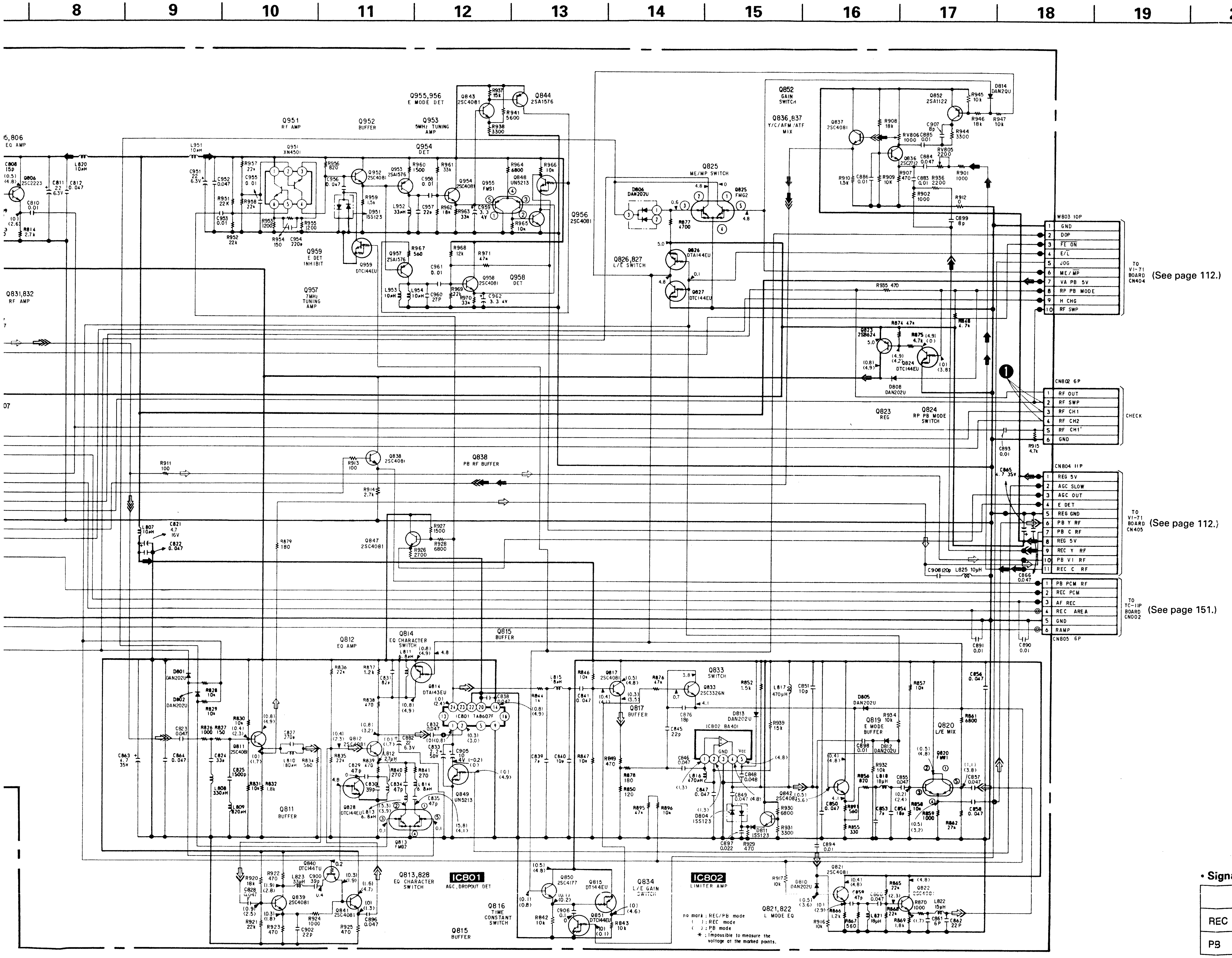
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MR-20 BOARD
(See page 129.)
TO M901 (DRUM)
CN801 16P
GND
CH1 (Y)
CH1 (X)
CH1 (G)
CH2 (Y)
CH2 (X)
CH2 (G)
GND
GND
GND
CH1' (Y)
CH1' (X)
CH1' (G)
FE (X)
FE (Y)
FE (G)
W804
CHASSIS
HR-3P
CH1 BIAS
REQ 5V
CH1 CHECK
CH1 (Y)
CH1 (X)
GND
GND
CH2 (X)
CH2 (Y)
CH2 CHECK
RP 5V
CH2 BIAS
CH1 Z
PB V1 RF
RF CH1
RF CH2
AF REC
PB RF
RF IN
REC AREA
PB PCM RF
RP PB MODE
RF SWP
RF GND
REC V1 RF
HCHG
CH2 Z
REC PCM RF
TP802 CH1 CHECK
Q801 CH1' HEAD SHORT
Q802–804 CH 1' HEAD AMP
Q805,806 CH 1' EQ AMP
Q829,830 RAMP GENERATOR
Q831,832 RF AMP
Q807
Q808 ERASE CURRENT SWITCH
TP804 FE
Q810 FLYING ERASE OSC
IC801
IC801 TA8607F
BUFF
AMP
D.O.C
D.O.C DET
A.G.C DET
A.G.C
EQ AMP
12dB
PEAK DET
LEVEL COMP
GND
Vcc
Q955,956 F MODE DET
Q951 RF AMP
Q952 BUFFER
Q953 5MHz TUNING AMP
Q954 DET
Q956 2SC4081
Q959 F DET INHIBIT
Q957 7MHz TUNING AMP
Q958 DET
Q838 PB RF BUFFER
Q847 2SC4081
Q812 EQ AMP
Q814 EQ CHARACTER SWITCH
Q815 BUFFER
Q811 BUFFER
Q813,828 EQ CHARACTER SWITCH
IC801 AGC, DROPOUT DET
Q816 TIME CONSTANT SWITCH
Q815 BUFFER
Q817 BUFFER
Q833 SWITCH
Q834 L/E GAIN SWITCH
IC802 LIMITER AMP
Q852 GAIN SWITCH
Q836,837 Y/C/AFM/ATF MIX
Q825 ML/SMP SWITCH
Q826,827 L/E SWITCH
Q819 E MODE BUFFER
Q821,822 E MODE Q


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
Q951 RF AMP
Q952 BUFFER
Q953 5MHz TUNING AMP
Q955,956 E MODE DET
Q954 DET
Q956 2SC4081
Q957 7MHz TUNING AMP
Q958 DET
Q959 E DET INHIBIT
Q831,832 RF AMP
Q852 GAIN SWITCH
Q836,837 Y/C/AFM/ATF MIX
Q825 ME/MP SWITCH
Q826,827 L/E SWITCH
Q823 REG
Q824 RP PB MODE SWITCH
Q838 PB RF BUFFER
Q847 2SC4081
Q812 EQ AMP
Q814 EQ CHARACTER SWITCH
Q815 BUFFER
Q811 BUFFER
Q813,828 EQ CHARACTER SWITCH
IC801
AGC, DROPOUT DET
Q816 TIME CONSTANT SWITCH
Q815 BUFFER
Q817 BUFFER
Q833 SWITCH
Q834 L/E GAIN SWITCH
IC802
LIMITER AMP
IC802 BA401
Q819 E MODE BUFFER
Q820 L/E MIX
Q821,822 L MODE EQ
❶
W803 10P
1 GND
2 DOP
3 FE ON
4 E/L
5 JOG
6 ME/MP
7 VA PB 5V
8 RP PB MODE
9 H CHG
10 RF SWP
TO VI-71 BOARD CN404
(See page 112.)
CN802 6P
1 RF OUT
2 RF SWP
3 RF CH1
4 RF CH2
5 RF CH1'
6 GND
CHECK
CN804 11P
1 REG 5V
2 AGC SLOW
3 AGC OUT
4 E DET
5 REG GND
6 PB Y RF
7 PB C RF
8 REG 5V
9 REC Y RF
10 PB VI RF
11 REC C RF
TO VI-71 BOARD CN405
(See page 112.)
1 PB PCM RF
2 REC PCM
3 AF REC
4 REC AREA
5 GND
6 RAMP
CN805 6P
TO TC-11P BOARD CN002
(See page 151.)

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
✶ : Impossible to measure the voltage at the marked points.

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

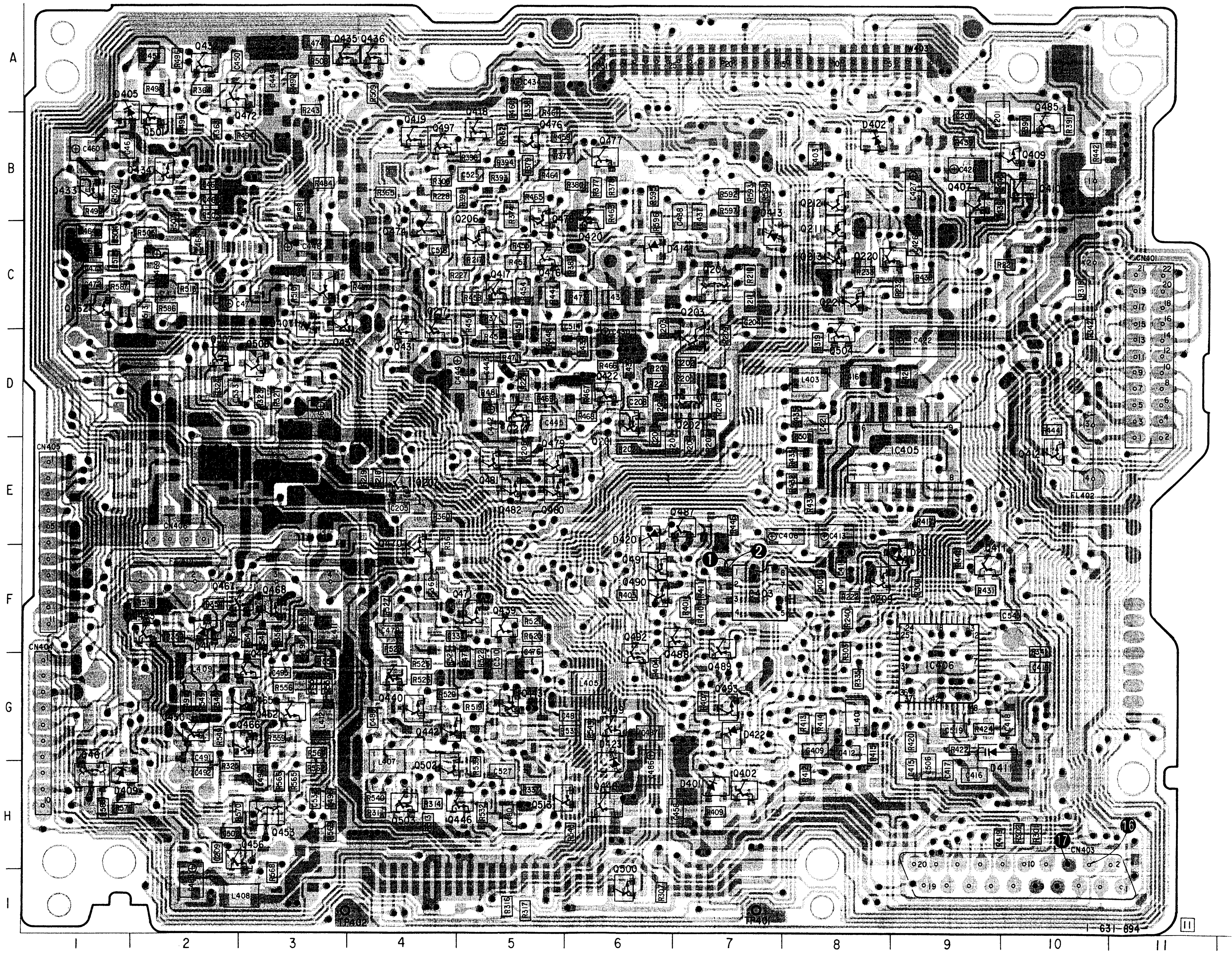
REC/PB AMP

VI-71 (Y/C PROCESS) PRINTED WIRING BOARD

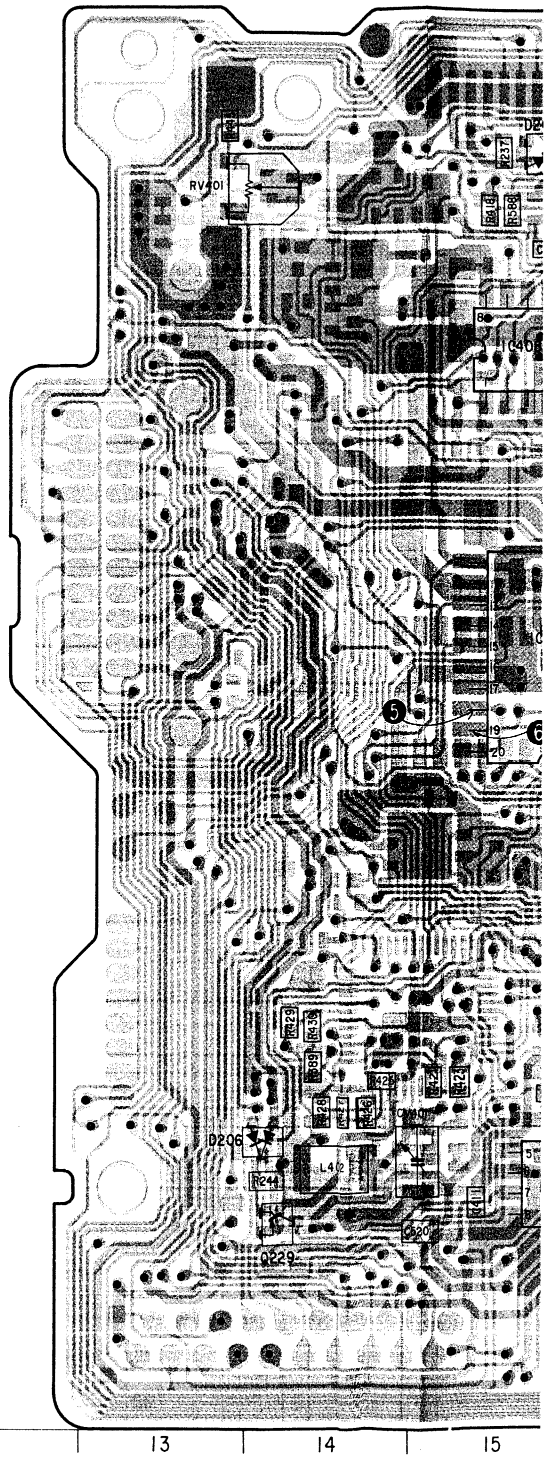
—Ref. No. VI-71 BOARD : 6000 series—

D201	F-8
D202	B-20
D204	A-15
D205	E-20
D206	G-14
D401	H-7
D402	B-8
D404	A-21
D405	A-1
D406	C-21
D407	C-3
D409	H-1
D411	G-9
D413	C-7
D414	C-6
D417	F-2
D418	B-18
D419	D-20
D420	E-6
D421	F-17
D422	G-7
D423	G-6
D424	D-21
D425	C-15
IC403	F-7
IC404	H-15
IC405	E-8
IC406	G-9
IC407	D-15
IC408	C-15
IC409	D-18
IC410	B-21
Q201	D-6
Q202	D-7
Q203	D-7
Q204	C-7
Q205	C-16
Q206	C-5
Q207	E-4
Q209	F-8
Q210	C-19
Q211	C-8
Q212	B-8
Q213	C-8
Q214	D-5
Q215	H-21
Q216	C-19
Q217	C-4
Q220	C-8
Q221	C-8
Q225	G-18
Q226	C-17
Q228	B-17
Q229	H-14
Q402	H-7
Q403	G-16
Q404	G-16
Q407	B-9
Q408	B-9
Q409	B-9
Q410	B-10
Q411	F-9
Q412	E-10
Q415	C-18
Q416	C-5
Q417	C-5
Q418	B-5
Q419	B-4
Q420	B-6
Q422	D-6
Q424	B-16
Q426	C-16
Q427	C-20
Q429	B-20
Q430	C-3
Q431	C-4
Q432	A-2
Q433	B-1
Q434	B-2
Q435	A-3
Q436	A-4
Q437	C-3
Q438	G-19
Q439	F-5
Q440	G-4
Q441	G-4
Q442	G-4
Q443	G-5
Q445	H-19
Q446	H-4
Q447	G-19
Q448	H-6
Q449	G-6
Q450	G-2
Q451	H-21
Q452	G-3
Q453	H-3
Q454	G-20
Q455	G-22
Q456	H-2
Q460	G-22
Q461	H-1
Q462	C-1
Q463	F-2
Q464	G-3
Q465	G-3
Q466	G-2
Q467	F-2
Q468	F-3
Q469	C-20
Q470	E-4
Q471	F-5
Q472	A-2
Q473	C-20
Q474	C-4
Q475	C-19
Q476	B-5
Q477	B-6
Q478	C-5
Q479	E-5
Q480	E-5
Q481	E-5
Q482	E-5
Q483	C-20
Q485	B-10
Q486	B-19
Q487	E-7
Q488	F-6
Q489	F-7
Q490	F-6
Q491	F-6
Q492	F-6
Q493	G-7
Q497	B-4
Q498	G-18
Q499	F-19
Q500	I-6
Q501	B-2
Q502	H-4
Q503	H-4
Q504	D-8
Q505	D-21
Q506	D-3
Q507	D-2
Q509	E-22
Q510	E-21
Q513	H-5

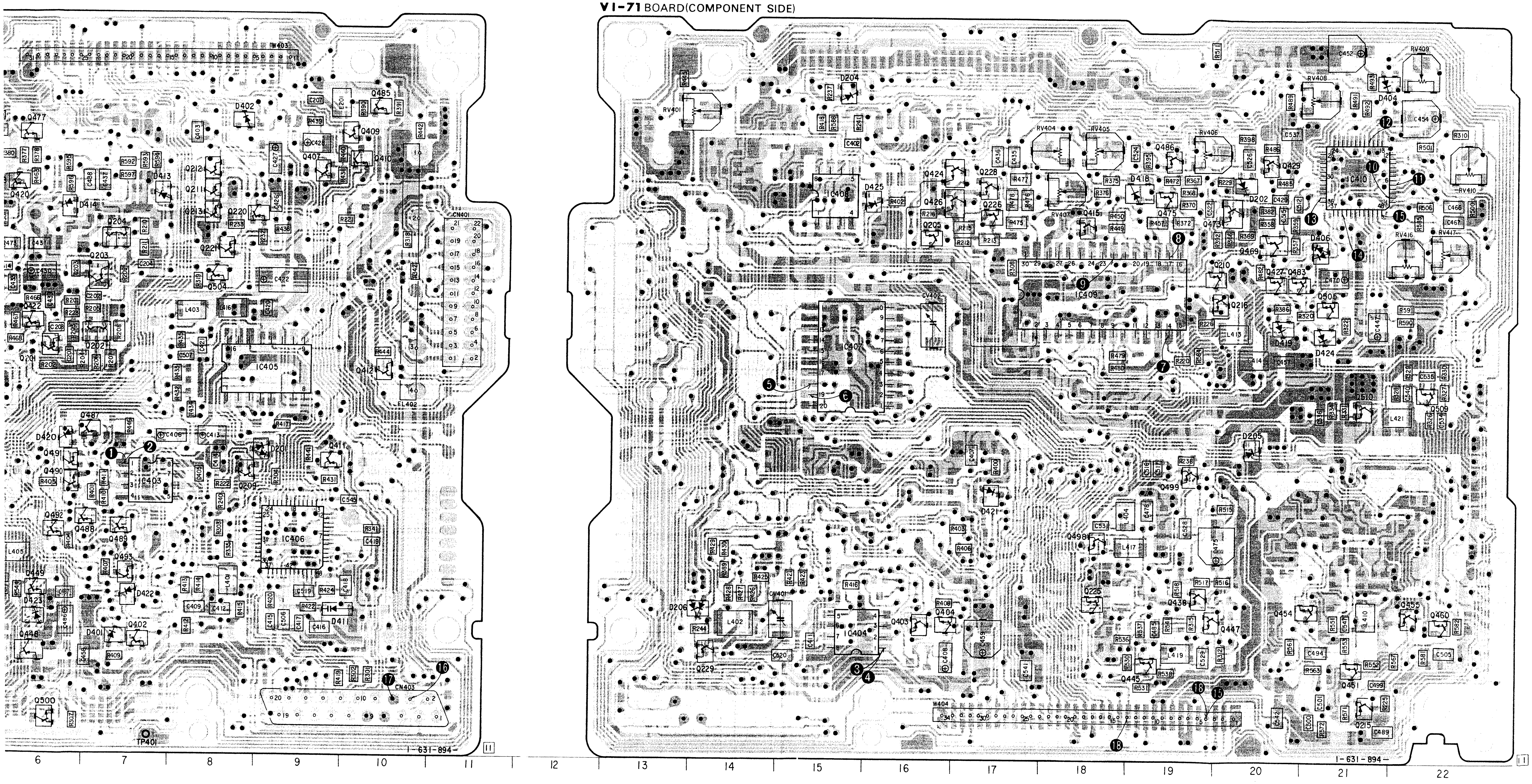
VI-71 BOARD (CONDUCTOR SIDE)



VI-71 BOARD(COMPONENT SIDE)



VI-71 BOARD(COMPONENT SIDE)


IC403
IC405
IC406
IC407
IC408
IC409
IC410
IC404
CN401
CN403
W403
W404
EL402
TP401
RV401
RV404
RV405
RV406
RV407
RV408
RV409
RV410
RV416
RV417
CV401
CV402
L401
L402
L403
L404
L405
L413
L414
L417
L419
L421
1-631-894
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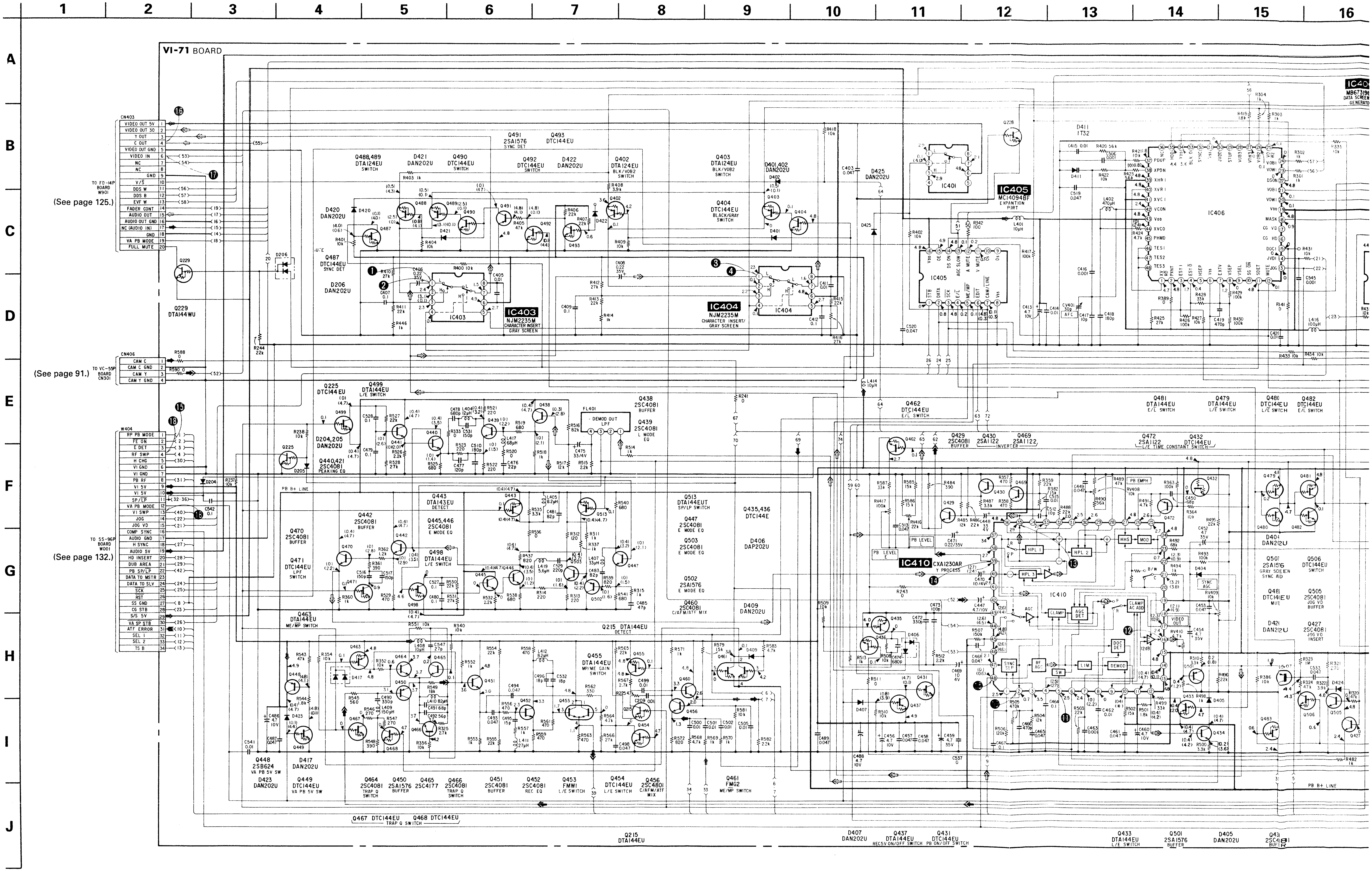
VI-71 (Y/C PROCESS) SCHEMATIC DIAGRAM

—Ref. No. VI-71 BOARD : 6000 series—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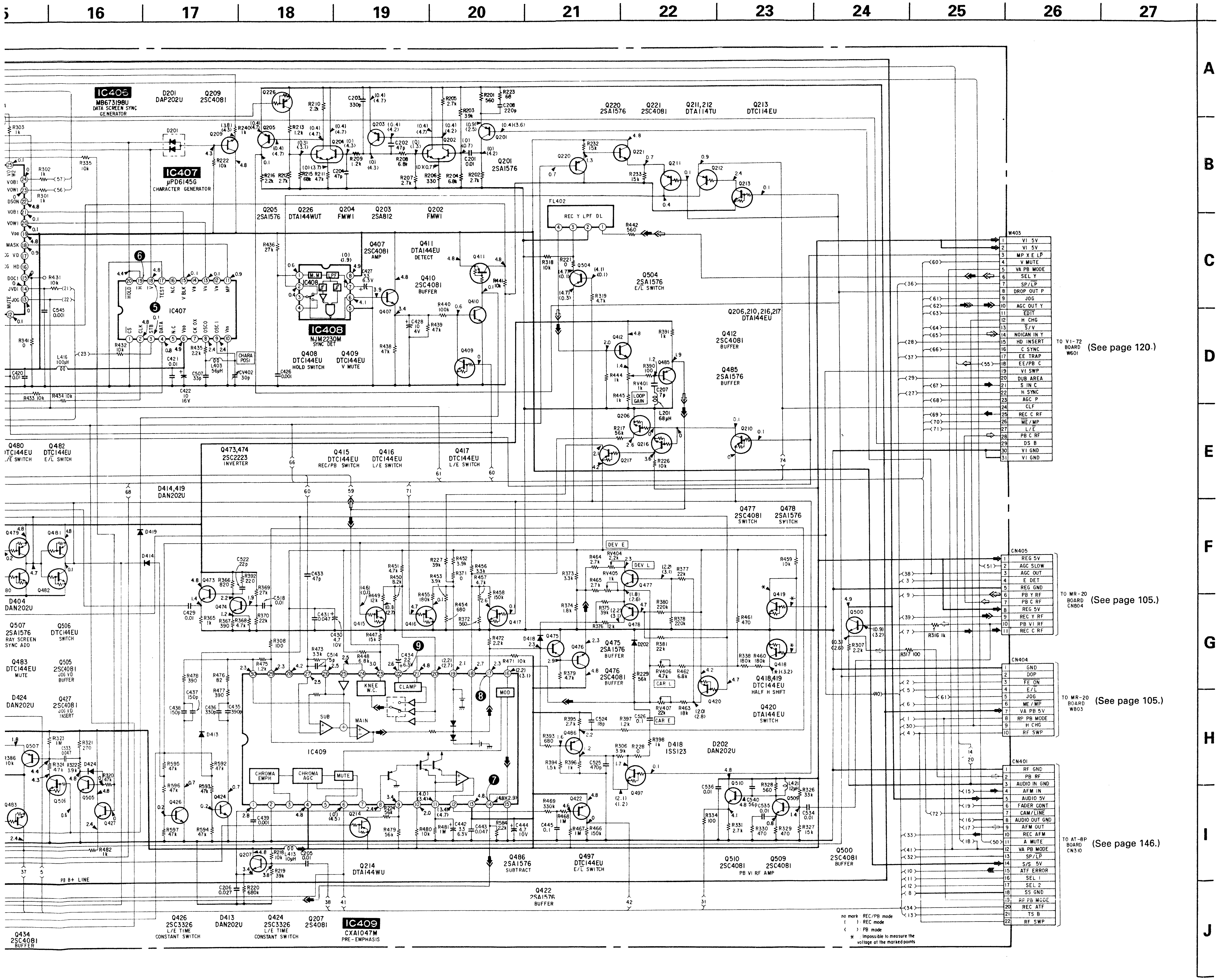
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VI-71 BOARD
CN403
VIDEO OUT 5V
VIDEO OUT 3D
Y OUT
C OUT
VIDEO OUT GND
VIDEO IN
NC
NC
GND
V/S
DDS W
DDS B
EVF W
FADER CONT
AUDIO OUT
AUDIO OUT GND
NC (AUDIO IN)
GND
VA PB MODE
FULL MUTE
TO FD-14P BOARD W901
(See page 125.)
CN406
CAM C
CAM C GND
CAM Y
CAM Y GND
TO VC-55P BOARD CN301
(See page 91.)
W404
RP PB MODE
FE ON
E DET
RF SWP
H CHG
VI GND
VI GND
PB RF
VI 5V
VI 5V
SP/LP
VA PB MODE
VI SWP
JOG
JOG VD
COMP SYNC
AUDIO GND
H SYNC
AUDIO 5V
HD INSERT
DUB AREA
PB SP/LP
DATA TO MSTR
DATA TO SLV
SCK
RST
SS GND
CG STB
S/S 5V
VA SP STB
ATF ERROR
SEL 1
SEL 2
TS B
TO SS-96P BOARD W001
(See page 132.)
Q229 DTA144WU
D206 DAN202U
Q487 DTC144EU SYNC DET
D420 DAN202U
Q488,489 DTA124EU SWITCH
D421 DAN202U
Q490 DTC144EU SWITCH
Q491 2SA1576 SYNC DET
Q493 DTC144EU
Q492 DTC144EU SWITCH
D422 DAN202U
Q402 DTA124EU BLK/VOB2 SWITCH
Q403 DTA124EU BLK/VOB2 SWITCH
Q404 DTC144EU BLACK/GRAY SWITCH
D401,402 DAN202U
D425 DAN202U
IC403 NJM2235M CHARACTER INSERT GRAY SCREEN
IC404 NJM2235M CHARACTER INSERT/ GRAY SCREEN
IC401
IC405 MC14094BF EXPANTION PORT
D411 1T32
IC406
IC40 MB673196 DATA SCREEN GENERATO
Q225 DTC144EU
Q499 DTA144EU L/E SWITCH
D204,205 DAN202U
Q440,421 2SC4081 PEAKING EQ
Q443 DTA143EU DETECT
FL401 DEMOD OUT LPF
Q438 2SC4081 BUFFER
Q439 2SC4081 L MODE EQ
Q462 DTC144EU E/L SWITCH
Q429 2SC4081 BUFFER
Q430 2SA1122
Q469 2SA1122
INVERTER
Q481 DTA144EU E/L SWITCH
Q479 DTA144EU L/E SWITCH
Q480 DTC144EU L/E SWITCH
Q482 DTC144EU E/L SWITCH
Q472 2SA1122
Q432 DTC144EU
L/E TIME CONSTANT SWITCH
PB B+ LINE
Q470 2SC4081 BUFFER
Q471 DTC144EU LPF SWITCH
Q442 2SC4081 BUFFER
Q445,446 2SC4081 E MODE EQ
Q498 DTA144EU L/E SWITCH
Q513 DTA144EUT SP/LP SWITCH
Q447 2SC4081 E MODE EQ
Q503 2SC4081 E MODE EQ
Q502 2SA1576 E MODE EQ
Q460 2SC4081 C/AFM/ATF MIX
Q435,436 DTC144E
D406 DAP202U
D409 DAN202U
IC410 CXA1230AR Y PROCESS
PB LEVEL L
PB LEVEL E
PB EMPH
HPL 1
HPL 2
HPL 3
HHS
MOD
AGC
CLAMP
AGC DET
CLAMP AC ADD
VIDEO OUT
SYNC SEP
RF AGC
SW
LIM
DEMOD
DOC DET
SYNC AGC
D404 DAN202U
Q501 2SA1576 GRAY SCREEN SYNC ADD
Q506 DTC144EU SWITCH
Q481 DTC144EU MUTE
Q505 2SC4081 JOG VD BUFFER
D421 DAN202U
Q427 2SC4081 INSERT
Q463 DTA144EU ME/MP SWITCH
Q215 DTA144EU DETECT
Q455 DTA144EU MP/ME GAIN SWITCH
Q448 2SB624 VA PB 5V SW
D423 DAN202U
Q449 DTC144EU VA PB 5V SW
D417 DAN202U
Q464 2SC4081 TRAP Q SWITCH
Q450 2SA1576 BUFFER
Q465 2SC4177
Q466 2SC4081 TRAP Q SWITCH
Q451 2SC4081 BUFFER
Q452 2SC4081 REC EQ
Q453 FMW1 L/E SWITCH
Q454 DTC144EU L/E SWITCH
Q456 2SC4081 C/AFM/ATF MIX
Q461 FMG2 ME/MP SWITCH
Q467 DTC144EU
Q468 DTC144EU
TRAP Q SWITCH
Q215 DTA144EU
D407 DAN202U
Q437 DTA144EU REC5V ON/OFF SWITCH
Q431 DTC144EU PB ON/OFF SWITCH
Q433 DTA144EU L/E SWITCH
Q501 2SA1576 BUFFER
D405 DAN202U
Q43 2SC4 BUFF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A
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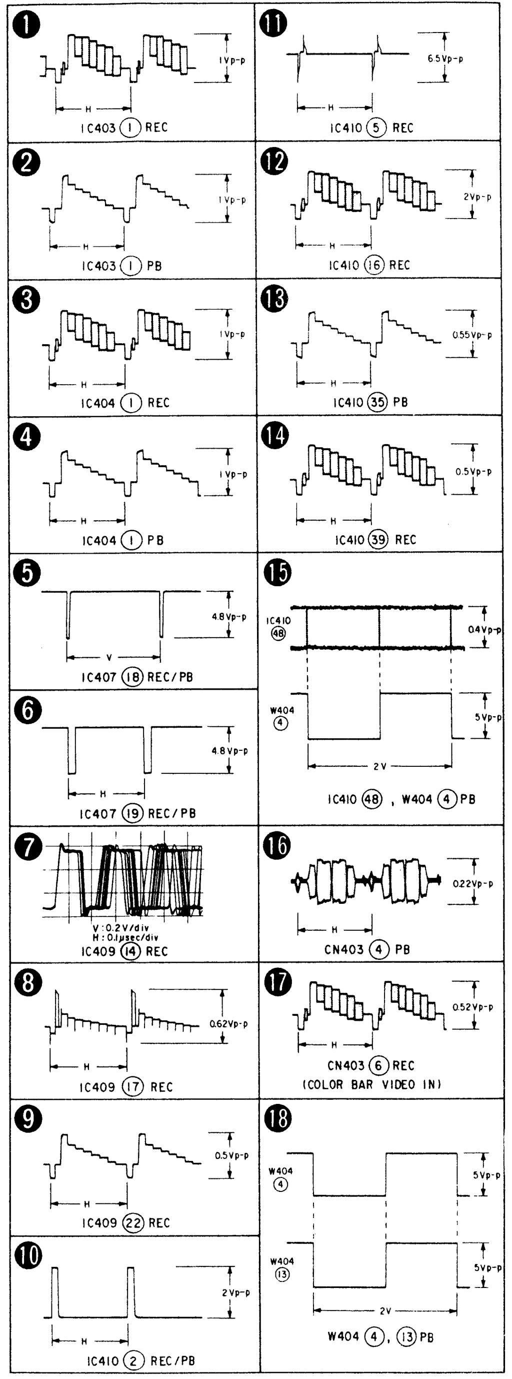
J
IC406
MB673198U
DATA SCREEN SYNC GENERATOR
IC407
μPD6145G
CHARACTER GENERATOR
IC408
NJM2230M
SYNC DET
IC409
CXA1047M
PRE-EMPHASIS
FL402
REC Y LPF DL
W403
CN405
CN404
CN401
TO VI-72 BOARD W601
(See page 120.)
TO MR-20 BOARD CN804
(See page 105.)
TO MR-20 BOARD W803
(See page 105.)
TO AT-8P BOARD CN310
(See page 146.)
no mark REC/PB mode
( ) REC mode
< > PB mode
* Impossible to measure the voltage at the marked points

VI-71 BOARD


1
1Vp-p
H
IC403 ① REC
2
1Vp-p
H
IC403 ① PB
3
1Vp-p
H
IC404 ① REC
4
1Vp-p
H
IC404 ① PB
5
4.8Vp-p
V
IC407 ⑱ REC/PB
6
4.8Vp-p
H
IC407 ⑲ REC/PB
7
V:0.2V/div
H:0.1μsec/div
IC409 ⑭ REC
8
0.62Vp-p
H
IC409 ⑰ REC
9
0.5Vp-p
H
IC409 ㉒ REC
10
2Vp-p
H
IC410 ② REC/PB
11
6.5Vp-p
H
IC410 ⑤ REC
12
2Vp-p
H
IC410 ⑯ REC
13
0.55Vp-p
H
IC410 ㉟ PB
14
0.5Vp-p
H
IC410 ㊴ REC
15
IC410 ㊽
0.4Vp-p
W404 ④
5Vp-p
2V
IC410 ㊽ , W404 ④ PB
16
0.22Vp-p
H
CN403 ④ PB
17
0.52Vp-p
H
CN403 ⑥ REC
(COLOR BAR VIDEO IN)
18
W404 ④
5Vp-p
W404 ⑬
5Vp-p
2V
W404 ④, ⑬ PB

- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡›	➡»	➡
PB	⇨	⇨›	⇨»	⇨

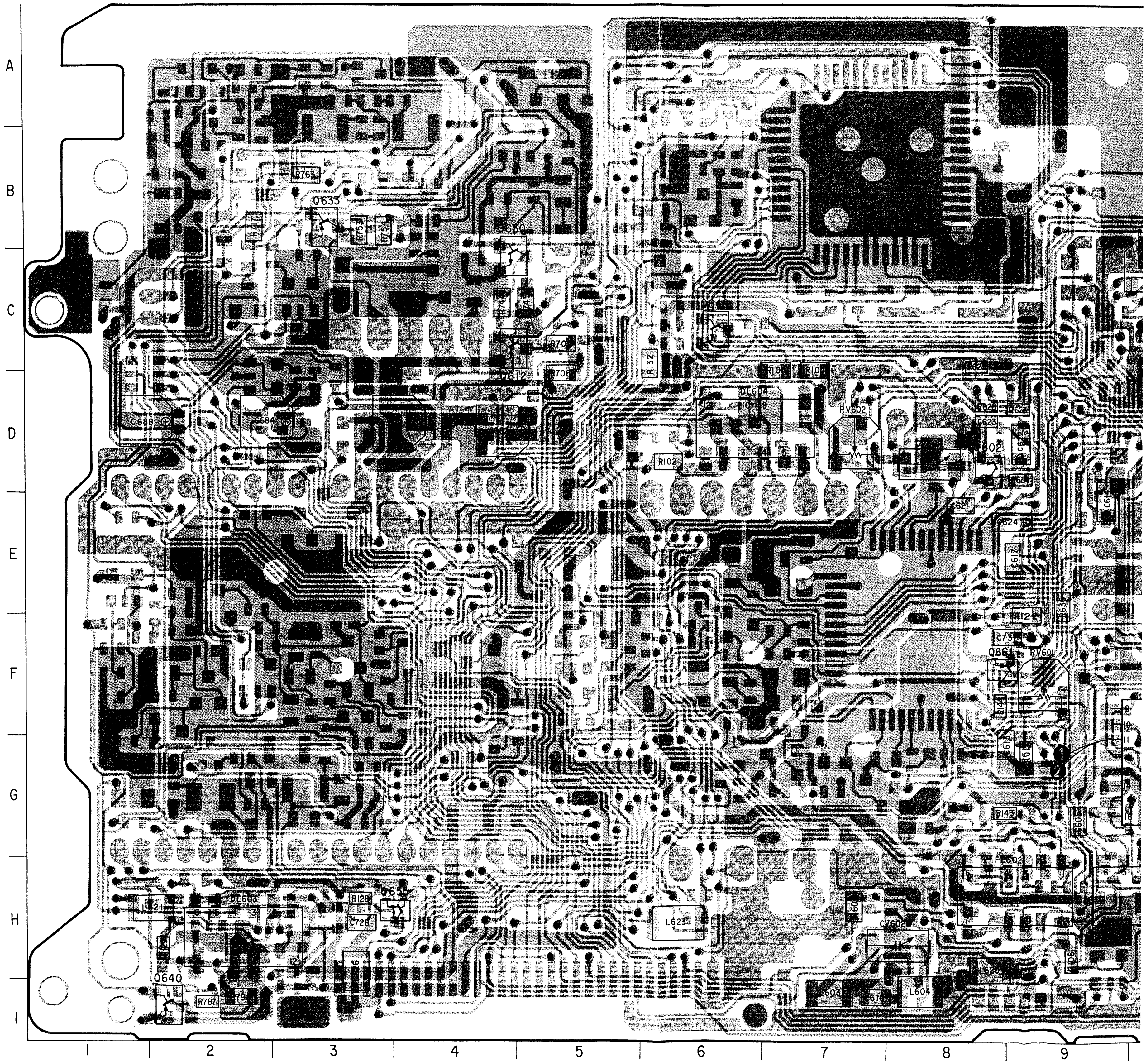
	REC	REC/PB	PB
Ref. signal	▶	⊳	▷

VI-72 (Y/C PROCESS) PRINTED WIRING BOARD

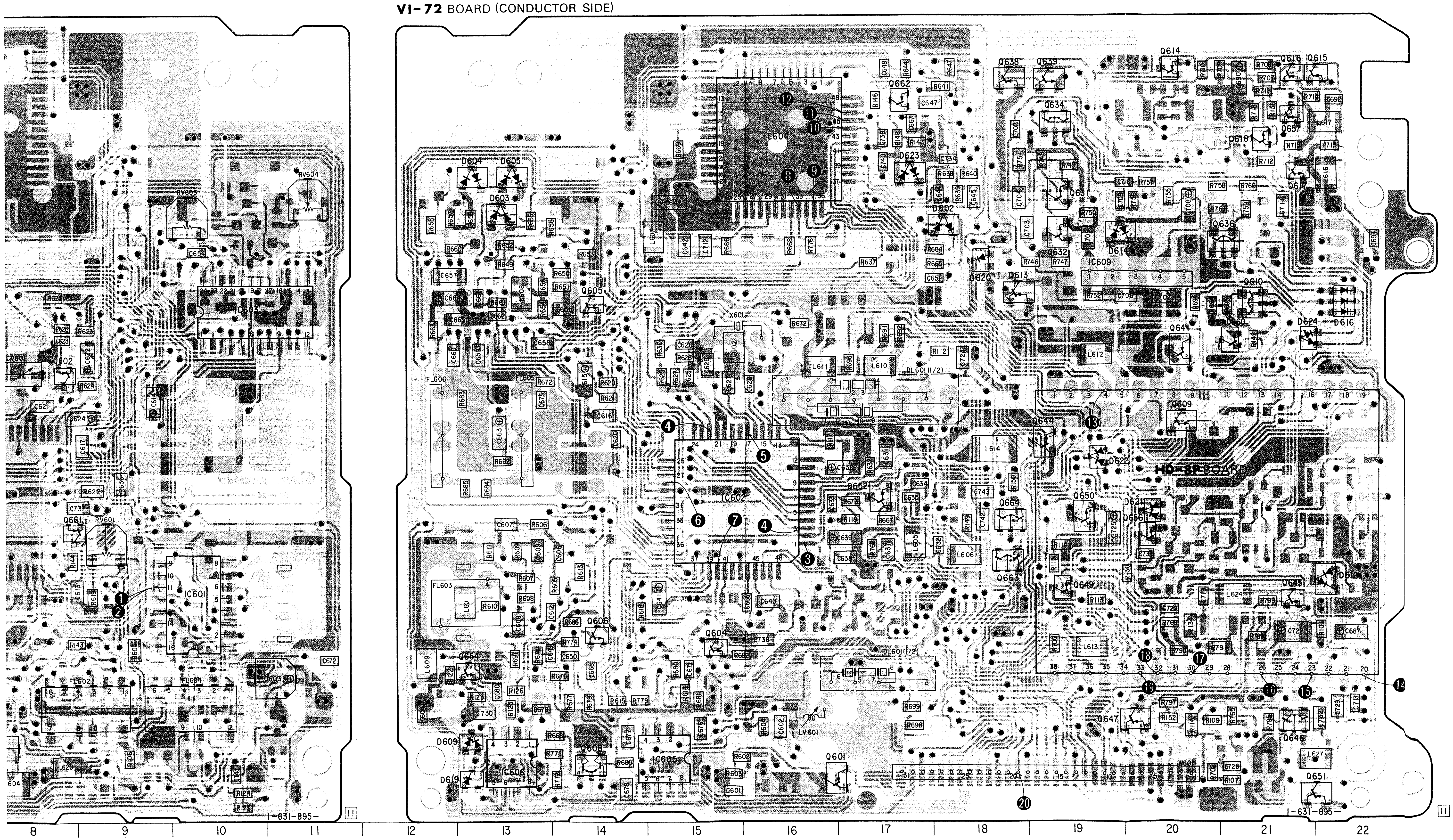
—Ref. No. VI-72 BOARD : 1000 series—

D602	C-17
D603	C-13
D604	B-13
D605	B-13
D609	H-13
D614	C-19
D616	D-22
D619	I-13
D620	C-18
D621	F-20
D622	E-19
D623	B-17
D624	D-21
IC601	G-10
IC602	F-15
IC603	D-10
IC604	B-16
IC605	H-15
IC606	H-13
IC609	C-19
Q601	I-16
Q602	D-8
Q604	G-15
Q605	D-14
Q606	G-14
Q608	H-14
Q609	E-20
Q610	D-21
Q612	C-4
Q613	C-18
Q614	A-20
Q615	A-21
Q616	A-21
Q617	B-21
Q618	B-21
Q630	C-4
Q631	B-19
Q632	C-19
Q633	B-3
Q634	B-19
Q636	C-20
Q638	A-18
Q639	A-18
Q640	I-2
Q641	D-20
Q644	E-19
Q645	G-21
Q646	H-21
Q647	H-20
Q648	C-6
Q649	G-19
Q650	F-19
Q651	I-21
Q652	F-17
Q654	G-13
Q655	H-3
Q656	F-20
Q657	B-21
Q660	D-20
Q661	F-8
Q662	A-17
Q663	F-18
Q664	F-18

VI-72 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
R765
Q633
R753
R754
Q650
Q612
R132
DL604
RV602
C688
R102
L623
CV602
L603
L604
Q655
R128
C728
DL603
Q640
R787
Q661
RV601
R143
L602

VI-72 BOARD (CONDUCTOR SIDE)


IC601
IC602
IC603
IC604
IC605
IC606
IC609
HD-8P BOARD
X601
DL601(1/2)
LV601
RV601
RV603
RV604
FL602
FL603
FL604
FL605
FL606
Q601
Q602
Q603
Q604
Q605
Q606
Q608
Q609
Q610
Q613
Q614
Q615
Q616
Q617
Q618
Q631
Q632
Q634
Q636
Q638
Q639
Q641
Q644
Q646
Q647
Q649
Q650
Q651
Q652
Q656
Q657
Q660
Q661
Q662
Q663
Q664
Q684
Q685
D602
D603
D604
D605
D609
D612
D614
D616
D619
D620
D621
D622
D623
D624
L601
L606
L609
L610
L611
L612
L613
L614
L617
L620
L624
L627
W601
1-631-895-
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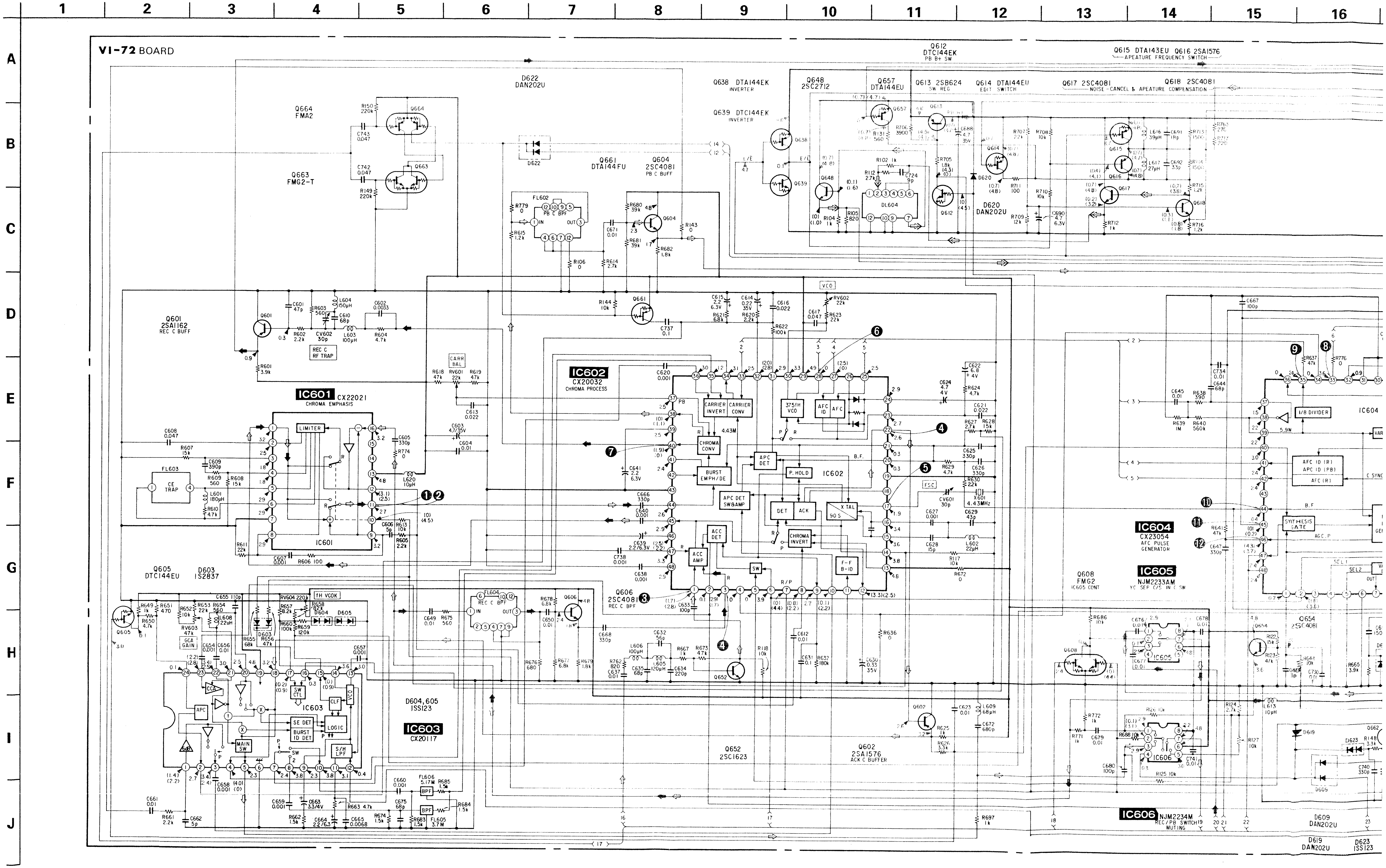
VI-72 (Y/C PROCESS) SCHEMATIC DIAGRAM

—Ref. No. VI-72 BOARD : 1000 series—



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A
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C
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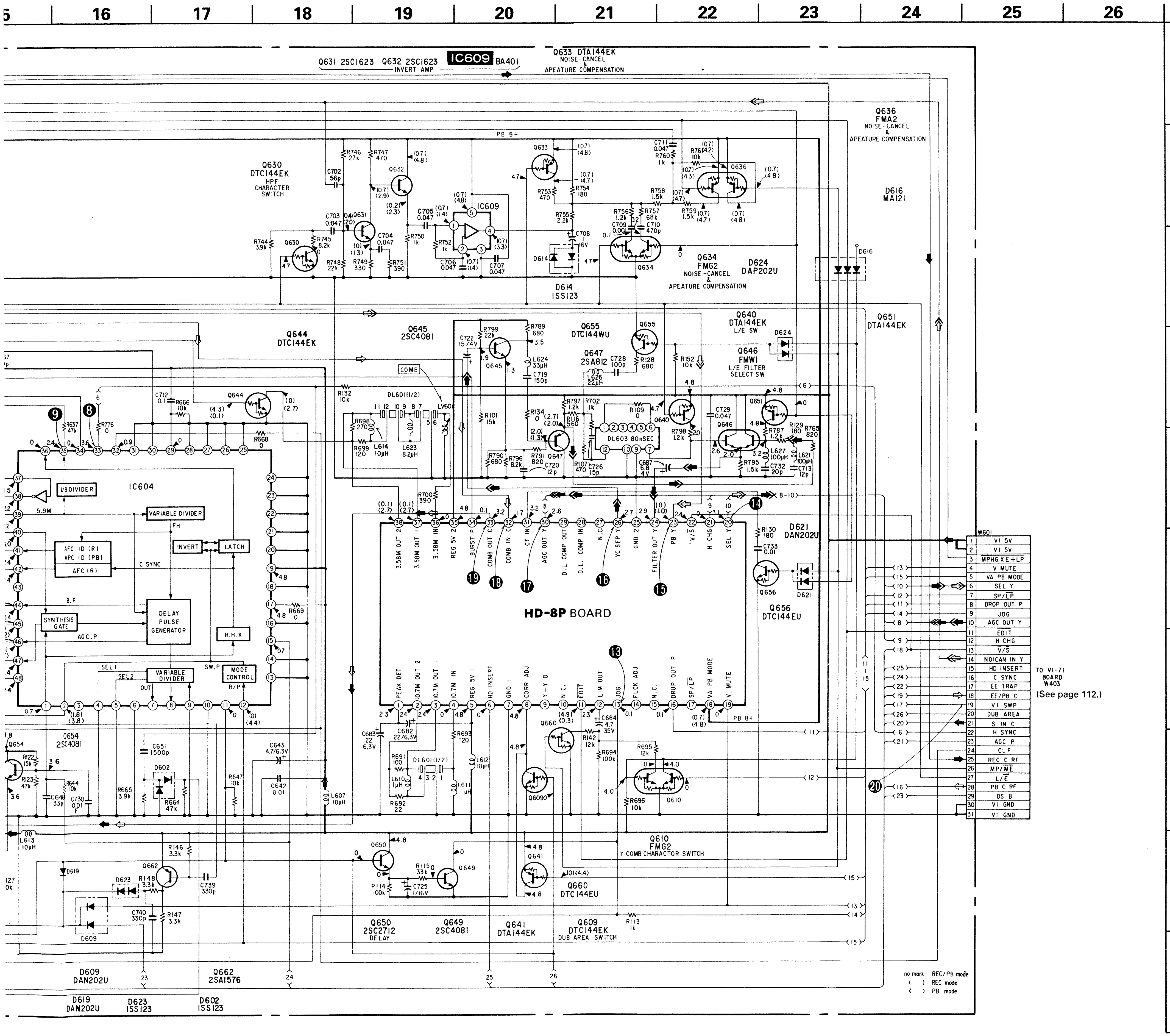
G
H
I
J
VI-72 BOARD
Q664 FMA2
Q663 FMG2-T
D622 DAN202U
Q661 DTA144FU
Q604 2SC4081 PB C BUFF
FL602 PB C BPF
Q638 DTA144EK INVERTER
Q639 DTC144EK INVERTER
Q648 2SC2712
Q657 DTA144EU
Q612 DTC144EK PB B+ SW
Q613 2SB624 SW REG
Q614 DTA144EU EDIT SWITCH
Q617 2SC4081
Q618 2SC4081
NOISE-CANCEL & APEATURE COMPENSATION
Q615 DTA143EU Q616 2SA1576
APEATURE FREQUENCY SWITCH
DL604
D620 DAN202U
Q601 2SA1162 REC C BUFF
REC C RF TRAP
CARR BAL
IC601 CX22021 CHROMA EMPHASIS
LIMITER
FL603 CE TRAP
IC602 CX20032 CHROMA PROCESS
CARRIER INVERT
CARRIER CONV
375fH VCO
AFC ID
AFC
CHROMA CONV
BURST EMPH/DE
APC DET
P. HOLD
APC DET SW&AMP
DET
ACK
X TAL 90.S
CHROMA INVERT
ACC DET
ACC AMP
SW
F-F B-ID
4.43M
VCO
FSC
X601 4.43MHz
Q605 DTC144EU
D603 1S2837
GCA GAIN
fH VCOK
D604
D605
IC603 CX20117
D604, 605 1SS123
APC
CCA
SW CTL
VCO
CLF
SE DET
BURST ID DET
LOGIC
MAIN SW
S/H LPF
FL604 REC C BPF
Q606 2SC4081 REC C BPF
Q652 2SC1623
Q602 2SA1576 ACK C BUFFER
FL606 5.17M
FL605 3.7M
BPF
Q608 FMG2 IC605 CONT
IC604 CX23054 AFC PULSE GENERATOR
IC605 NJM2233AM YC SEP C/S IN C SW
IC606 NJM2234M REC/PB SWITCH MUTING
1/8 DIVIDER
AFC ID (R)
APC ID (PB)
AFC (R)
SYNTHESIS GATE
Q654 2SC4081
D619 DAN202U
D623 1SS123
D609 DAN202U
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫



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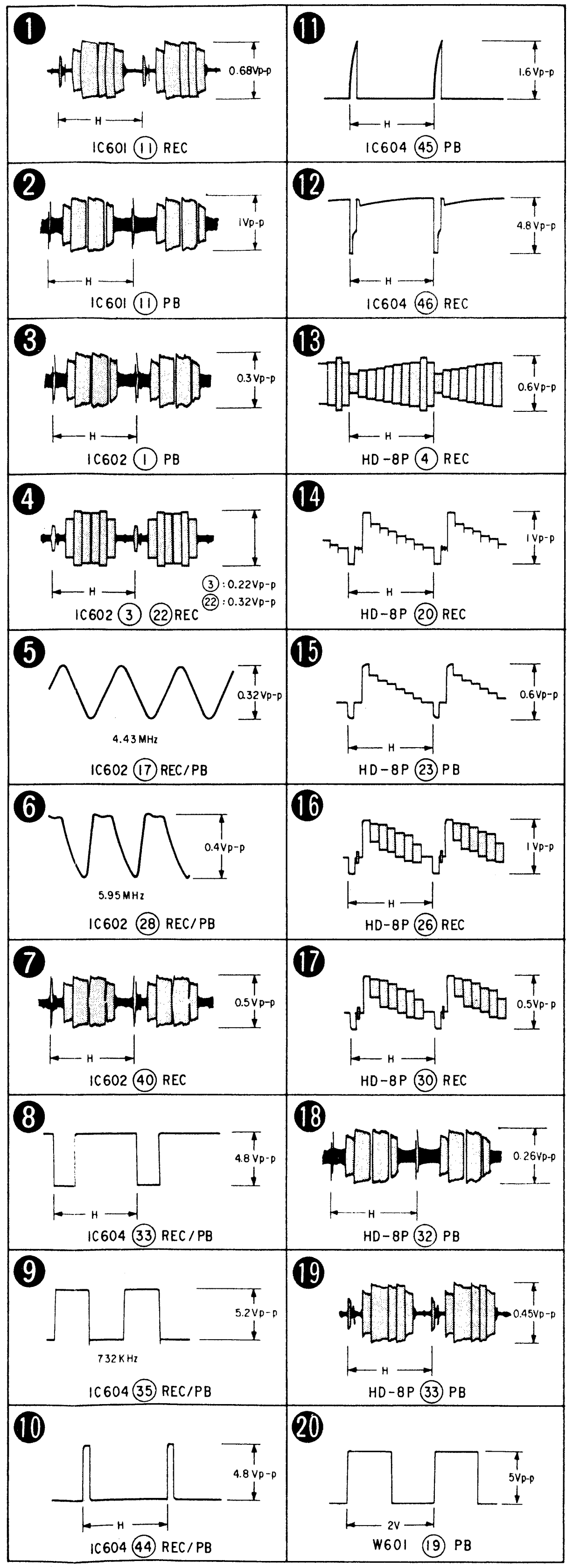
J
Q631 2SC1623 Q632 2SC1623 INVERT AMP
IC609 BA401
Q633 DTA144EK NOISE-CANCEL & APEATURE COMPENSATION
Q636 FMA2 NOISE-CANCEL & APEATURE COMPENSATION
Q630 DTC144EK HPF CHARACTER SWITCH
D616 MA121
Q634 FMG2 NOISE-CANCEL & APEATURE COMPENSATION
D624 DAP202U
D614 1SS123
Q644 DTC144EK
Q645 2SC4081
Q655 DTC144WU
Q647 2SA812
Q640 DTA144EK L/E SW
Q646 FMW1 L/E FILTER SELECT SW
Q651 DTA144EK
DL601(1/2)
DL603 80nSEC
COMB
IC604
1/8 DIVIDER
VARIABLE DIVIDER
AFC ID (R)
APC ID (PB)
AFC (R)
INVERT
LATCH
C SYNC
DELAY PULSE GENERATOR
SYNTHESIS GATE
H.H.K
VARIABLE DIVIDER
MODE CONTROL
HD-8P BOARD
D621 DAN202U
Q656 DTC144EU
Q654 2SC4081
D602
DL601(1/2)
Q610 FMG2 Y COMB CHARACTOR SWITCH
Q650 2SC2712 DELAY
Q649 2SC4081
Q641 DTA144EK
Q609 DTC144EK DUB AREA SWITCH
Q660 DTC144EU
D609 DAN202U
Q662 2SA1576
D619 DAN202U
D623 1SS123
D602 1SS123
W601
1 VI 5V
2 VI 5V
3 MPHG XE+LP
4 V MUTE
5 VA PB MODE
6 SEL Y
7 SP/LP
8 DROP OUT P
9 JOG
10 AGC OUT Y
11 EDIT
12 H CHG
13 V/S
14 NOICAN IN Y
15 HD INSERT
16 C SYNC
17 EE TRAP
18 EE/PB C
19 VI SWP
20 DUB AREA
21 S IN C
22 H SYNC
23 AGC P
24 CLF
25 REC C RF
26 MP/ME
27 L/E
28 PB C RF
29 DS B
30 VI GND
31 VI GND
TO VI-71 BOARD W403
(See page 112.)
no mark REC/PB mode
( ) REC mode
< > PB mode

VI-72 BOARD

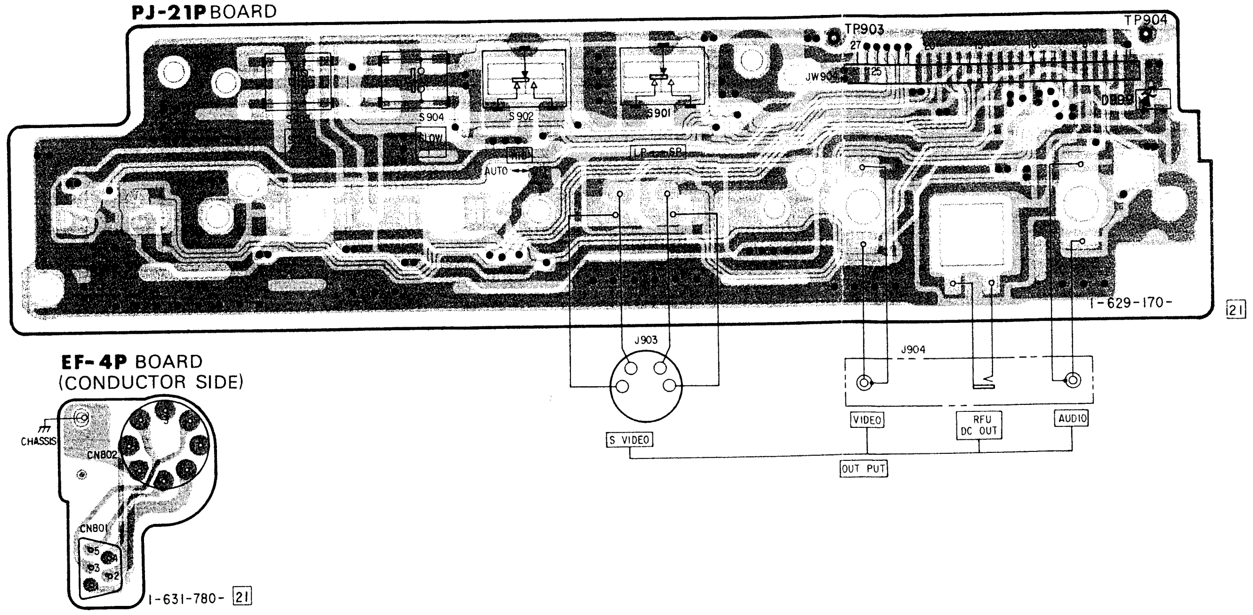


- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

FD-14P (VIDEO AMP), PJ-21P (IN/OUT TERMINAL) EF-4P (RELAY) PRINTED WIRING BOARDS

—Ref No. FD-14P BOARD: 4000 series, PJ-21P BOARD: 5000 series, EF-4P BOARD: 9000 series—

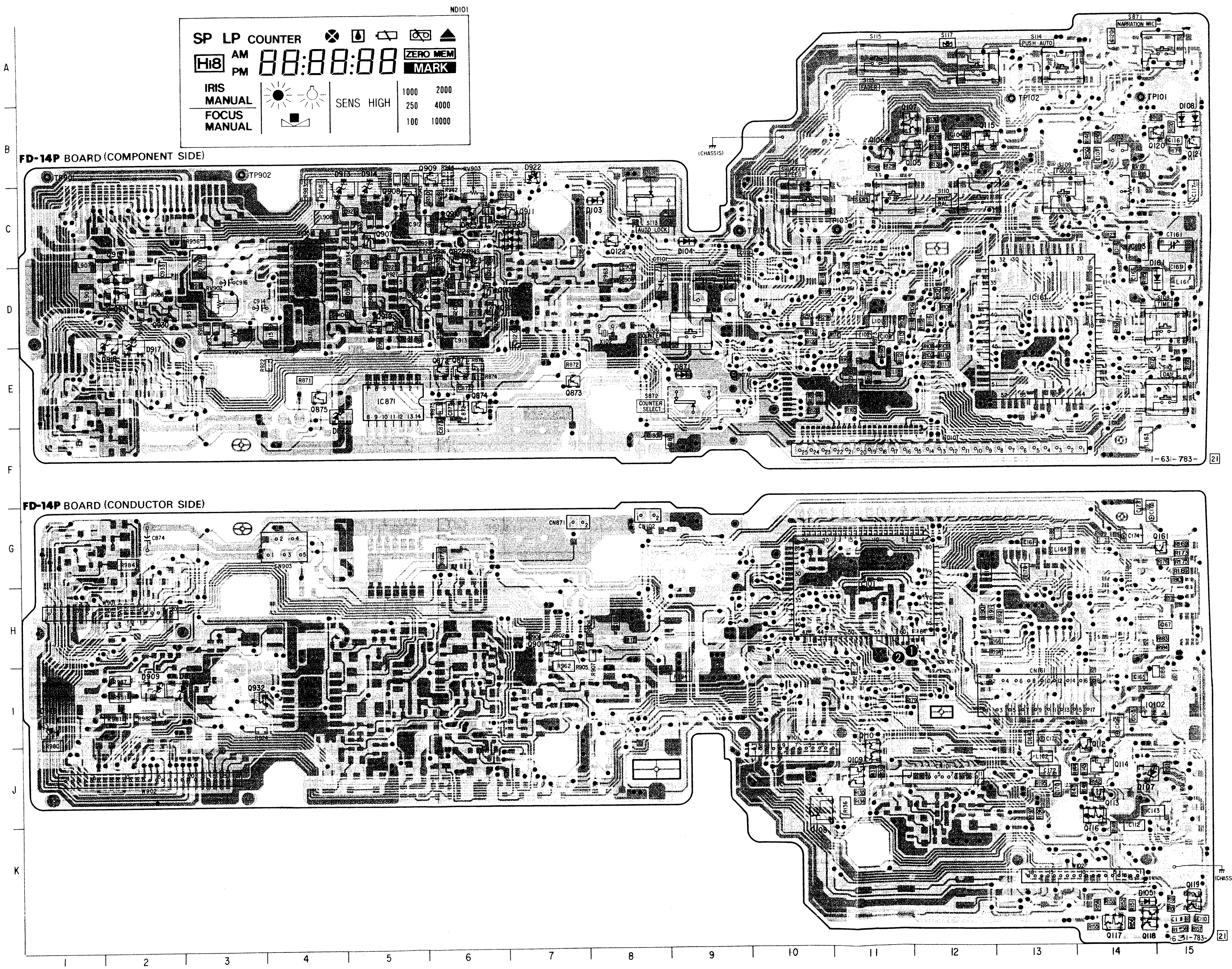


PJ-21P BOARD

EF-4P BOARD
(CONDUCTOR SIDE)

TP903
TP904
27
25
JW904
D889
S904
SLOW
S902
S901
AUTO
LP↔SP
1-629-170- 21
J903
S VIDEO
J904
VIDEO
RFU
DC OUT
AUDIO
OUT PUT
CHASSIS
CN802
CN801
5
4
3
2
1
1-631-780- 21

D103	C-8
D104	C-9
D105	L-15
D108	B-15
D161	D-14
D871	E-9
D872	E-4
D909	I-2
D910	I-3
D913	B-4
D914	B-5
D916	I-1
D917	E-2
D918	E-2
D920	C-7
D922	B-7
D923	C-6
IC101	H-11
IC102	I-14
IC103	C-14
IC161	D-13
IC871	E-5
IC901	D-4
IC902	D-5
Q105	B-11
Q106	B-11
Q107	B-11
Q108	J-10
Q109	J-11
Q110	J-11
Q112	J-14
Q113	J-14
Q114	J-14
Q115	B-12
Q116	J-14
Q117	K-14
Q118	K-14
Q119	K-14
Q120	B-14
Q121	B-14
Q122	C-8
Q161	G-15
Q871	E-6
Q872	E-6
Q873	E-7
Q874	E-6
Q875	E-4
Q901	H-7
Q905	D-6
Q906	D-6
Q907	C-5
Q908	C-5
Q909	B-6
Q910	C-6
Q911	C-7
Q914	D-2
Q919	D-5
Q922	C-6
Q923	D-6
Q930	D-2
Q931	D-2
Q932	I-3


ND101
SP LP COUNTER
Hi8 AM PM 88:88:88
ZERO MEM
MARK
IRIS MANUAL
FOCUS MANUAL
SENS HIGH
1000 2000
250 4000
100 10000
FD-14P BOARD (COMPONENT SIDE)
FD-14P BOARD (CONDUCTOR SIDE)
S871 NARRATION MIC
S115
S117
S114 PUSH AUTO
S116 FADER
TP102
TP101
S112 SHUTTER SPEED
S109 FOCUS
S113 AUTO LOCK
S106 COUNTER RESET
S872 COUNTER SELECT
S108 TIME
S107 DATE
IC161
IC871
CN871
CN102
CN903
CN101
CN161
IC101
IC102
(CHASSIS)
1-631-783-
21
A
B
C
D
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I
J
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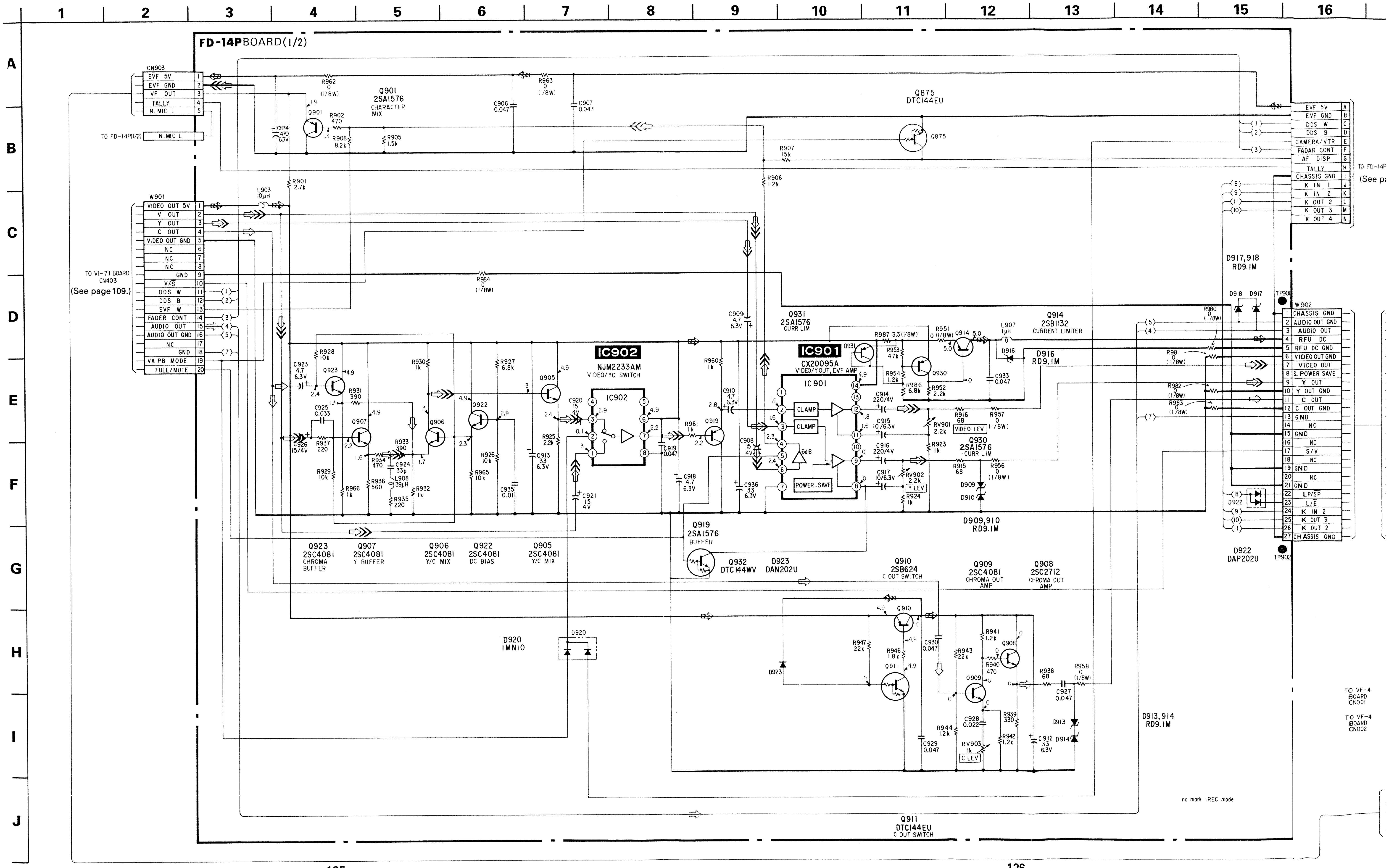
FD-14P (VIDEO AMP), PJ-21P (IN/OUT TERMINAL) EF-4P (RELAY) PRINTED WIRING BOARDS

—Ref No. FD-14P BOARD: 4000 series, PJ-21P BOARD: 5000 series, EF-4P BOARD: 9000 series—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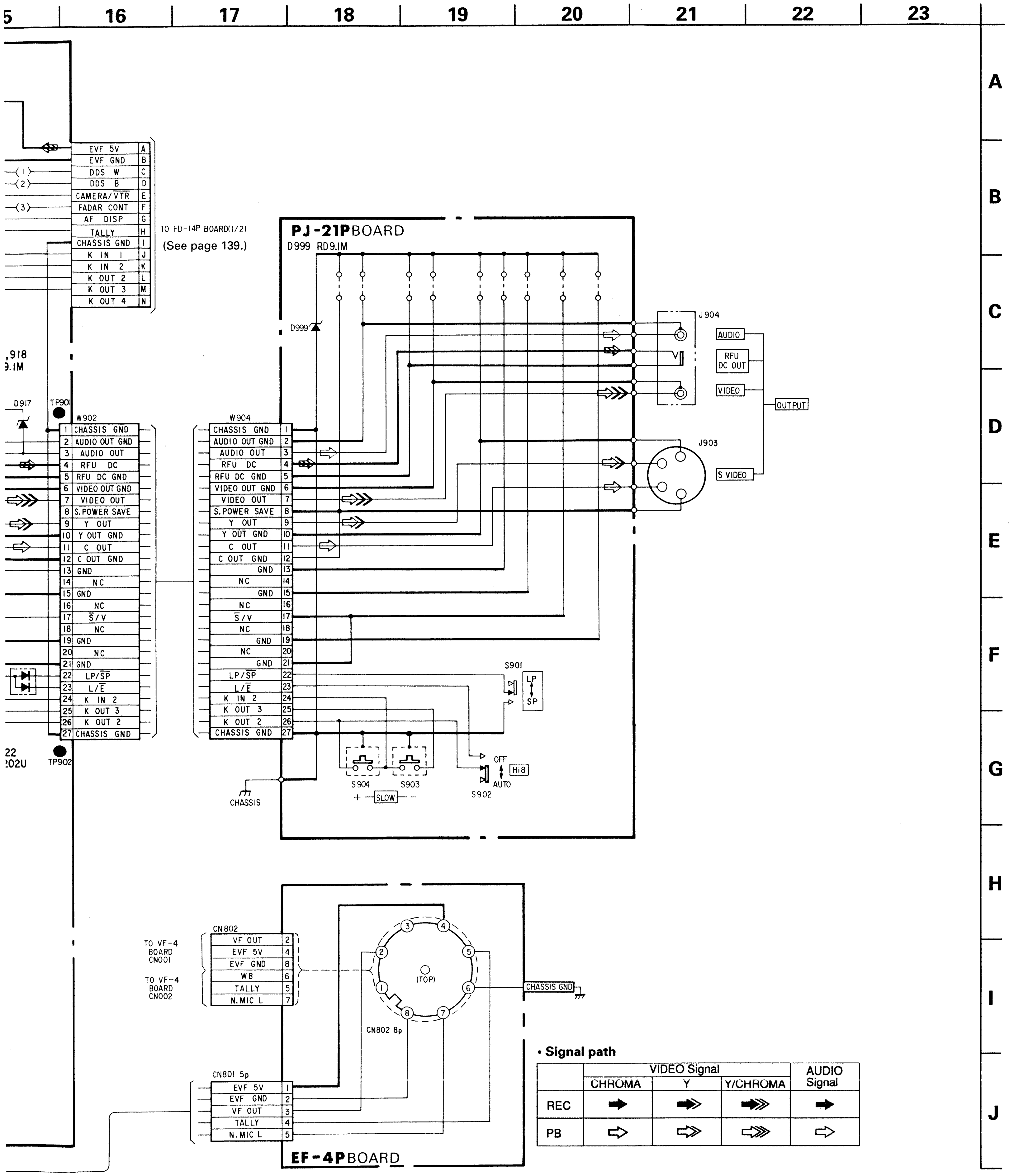
16
A
B
C
D
E
F
G
H
I
J
FD-14P BOARD(1/2)
CN903
EVF 5V
EVF GND
VF OUT
TALLY
N. MIC L
TO FD-14P(1/2)
N.MIC L
W901
VIDEO OUT 5V
V OUT
Y OUT
C OUT
VIDEO OUT GND
NC
GND
V/S
DDS W
DDS B
EVF W
FADER CONT
AUDIO OUT
AUDIO OUT GND
VA PB MODE
FULL/MUTE
TO VI-71 BOARD CN403
(See page 109.)
Q901 2SA1576 CHARACTER MIX
R962 0 (1/8W)
R902 470
R908 8.2k
R905 1.5k
C874 470 6.3V
R901 2.7k
L903 10μH
C906 0.047
C907 0.047
R963 0 (1/8W)
Q875 DTC144EU
R907 15k
R906 1.2k
R984 0 (1/8W)
C909 4.7 6.3V
Q931 2SA1576 CURR LIM
IC902
NJM2233AM
VIDEO/YC SWITCH
IC901
CX20095A
VIDEO/Y OUT, EVF AMP
CLAMP
POWER. SAVE
6dB
R928 10k
C923 4.7 6.3V
Q923
R931 390
C925 0.033
Q907
C926 15/4V
R937 220
R929 10k
R966 1k
R933 390
R934 470
C924 33p
R936 560
L908 39μH
R935 220
R932 1k
R930 1k
Q906
Q922
R927 6.8k
R926 10k
R965 10k
C935 0.01
Q905
C913 33 6.3V
R925 2.2k
C920 15 4V
C921 15 4V
C919 0.047
C918 4.7 6.3V
R961 1k
Q919
R960 1k
C910 4.7 6.3V
C908 15 4V
C936 33 6.3V
R987 3.3(1/8W)
R953 4.7k
R954 1.2k
R986 6.8k
R952 2.2k
Q930
R951 0 (1/8W)
Q914
L907 1μH
D916
C933 0.047
C914 220/4V
C915 10/6.3V
C916 220/4V
C917 10/6.3V
RV901 2.2k VIDEO LEV
RV902 2.2k Y LEV
R924 1k
R916 68
R957 0 (1/8W)
R923 1k
R915 68
R956 0 (1/8W)
D909
D910
Q930 2SA1576 CURR LIM
Q914 2SB1132 CURRENT LIMITER
D916 RD9.1M
D909,910 RD9.1M
D917,918 RD9.1M
D918
D917
TP901
TP902
R980 0 (1/8W)
R981 0 (1/8W)
R982 0 (1/8W)
R983 0 (1/8W)
W902
CHASSIS GND
AUDIO OUT GND
AUDIO OUT
RFU DC
RFU DC GND
VIDEO OUT GND
VIDEO OUT
S. POWER SAVE
Y OUT
Y OUT GND
C OUT
C OUT GND
GND
NC
S/V
LP/SP
L/E
K IN 2
K OUT 3
K OUT 2
CHASSIS GND
D922
D922 DAP202U
EVF 5V
EVF GND
DDS W
DDS B
CAMERA/VTR
FADAR CONT
AF DISP
TALLY
CHASSIS GND
K IN 1
K IN 2
K OUT 2
K OUT 3
K OUT 4
TO FD-14P
(See p
Q923 2SC4081 CHROMA BUFFER
Q907 2SC4081 Y BUFFER
Q906 2SC4081 Y/C MIX
Q922 2SC4081 DC BIAS
Q905 2SC4081 Y/C MIX
Q919 2SA1576 BUFFER
Q932 DTC144WV
D923 DAN202U
Q910 2SB624 C OUT SWITCH
Q909 2SC4081 CHROMA OUT AMP
Q908 2SC2712 CHROMA OUT AMP
D920 IMN10
D920
R947 22k
R946 1.8k
Q911
D923
C930 0.047
R941 1.2k
R943 22k
R940 470
R938 68
R958 0 (1/8W)
C927 0.047
C928 0.022
R939 330
R944 12k
RV903 1k C LEV
R942 1.2k
C912 33 6.3V
C929 0.047
D913
D914
D913,914 RD9.1M
TO VF-4 BOARD CN001
TO VF-4 BOARD CN002
no mark : REC mode
Q911 DTC144EU C OUT SWITCH


16
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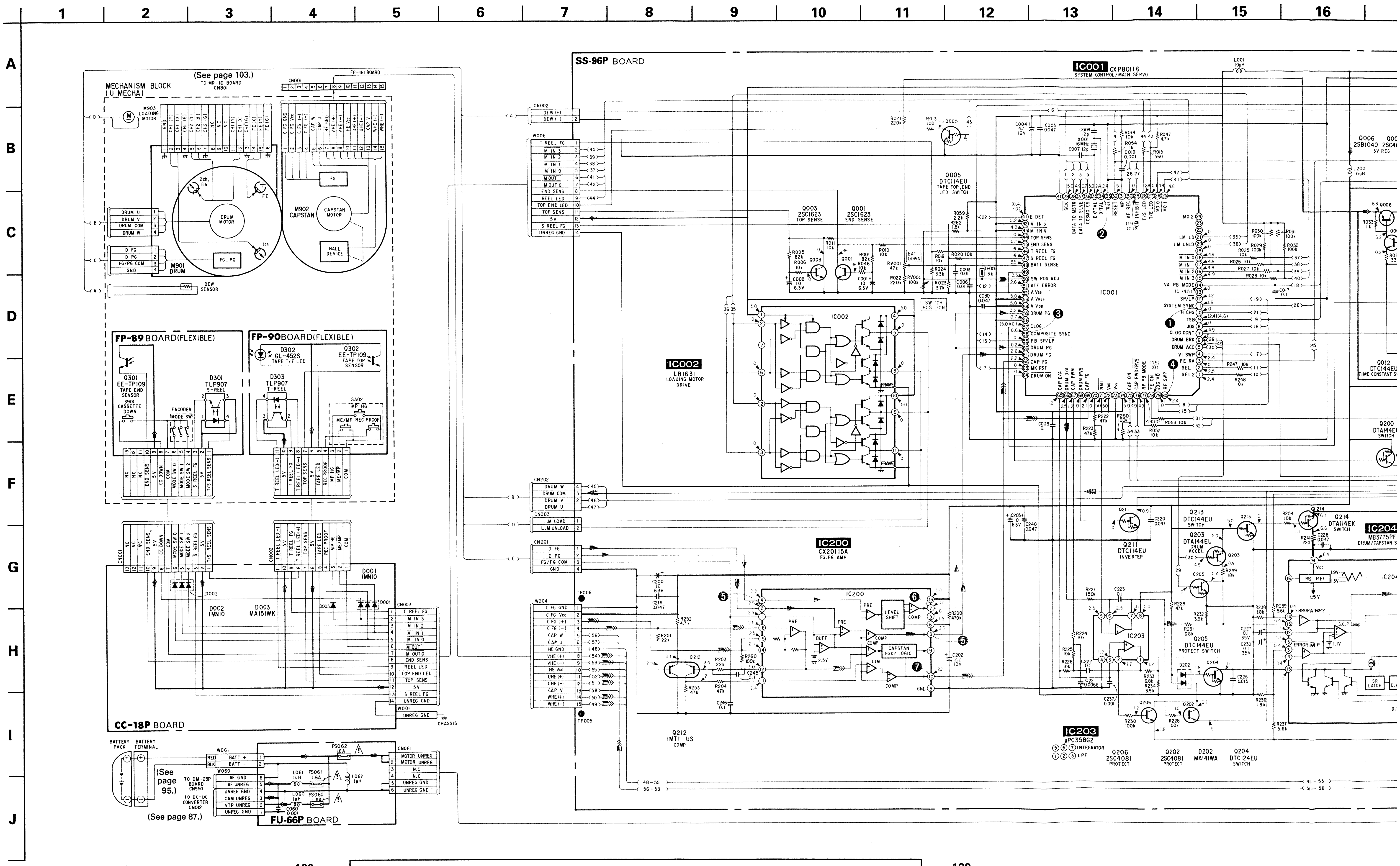
A
B
C
D
E
F
G
H
I
J
EVF 5V A
EVF GND B
DDS W C
DDS B D
CAMERA/VTR E
FADAR CONT F
AF DISP G
TALLY H
CHASSIS GND I
K IN 1 J
K IN 2 K
K OUT 2 L
K OUT 3 M
K OUT 4 N
TO FD-14P BOARD(1/2)
(See page 139.)
PJ-21P BOARD
D999 RD9.1M
D999
J904
AUDIO
RFU DC OUT
VIDEO
OUTPUT
J903
S VIDEO
,918
9.1M
D917
TP901
TP902
22
202U
W902
W904
1 CHASSIS GND
2 AUDIO OUT GND
3 AUDIO OUT
4 RFU DC
5 RFU DC GND
6 VIDEO OUT GND
7 VIDEO OUT
8 S.POWER SAVE
9 Y OUT
10 Y OUT GND
11 C OUT
12 C OUT GND
13 GND
14 NC
15 GND
16 NC
17 S/V
18 NC
19 GND
20 NC
21 GND
22 LP/SP
23 L/E
24 K IN 2
25 K OUT 3
26 K OUT 2
27 CHASSIS GND
S901
LP
SP
OFF
Hi8
AUTO
S902
S904
S903
SLOW
+
-
CHASSIS
EF-4P BOARD
CN802
TO VF-4 BOARD CN001
TO VF-4 BOARD CN002
VF OUT 2
EVF 5V 4
EVF GND 8
WB 6
TALLY 5
N.MIC L 7
(TOP)
CN802 8p
CHASSIS GND
CN801 5p
EVF 5V 1
EVF GND 2
VF OUT 3
TALLY 4
N.MIC L 5

• **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

SS-96P (SERVO, SYSTEM CONTROL) FP-89 (MODE SW, SENSOR), FP-90 (TAPE SELECT SW, SENSOR), FU-66P (BATTERY TERMINAL), CC-18P (RELAY) SCHEMATIC DIAGRAM

–Ref. No. SS-96P BOARD: 1000 series, FP-89 and FP-90 BOARDS: 2000 series. FU-66P and CC-18P BOARDS: 3000 series–


1
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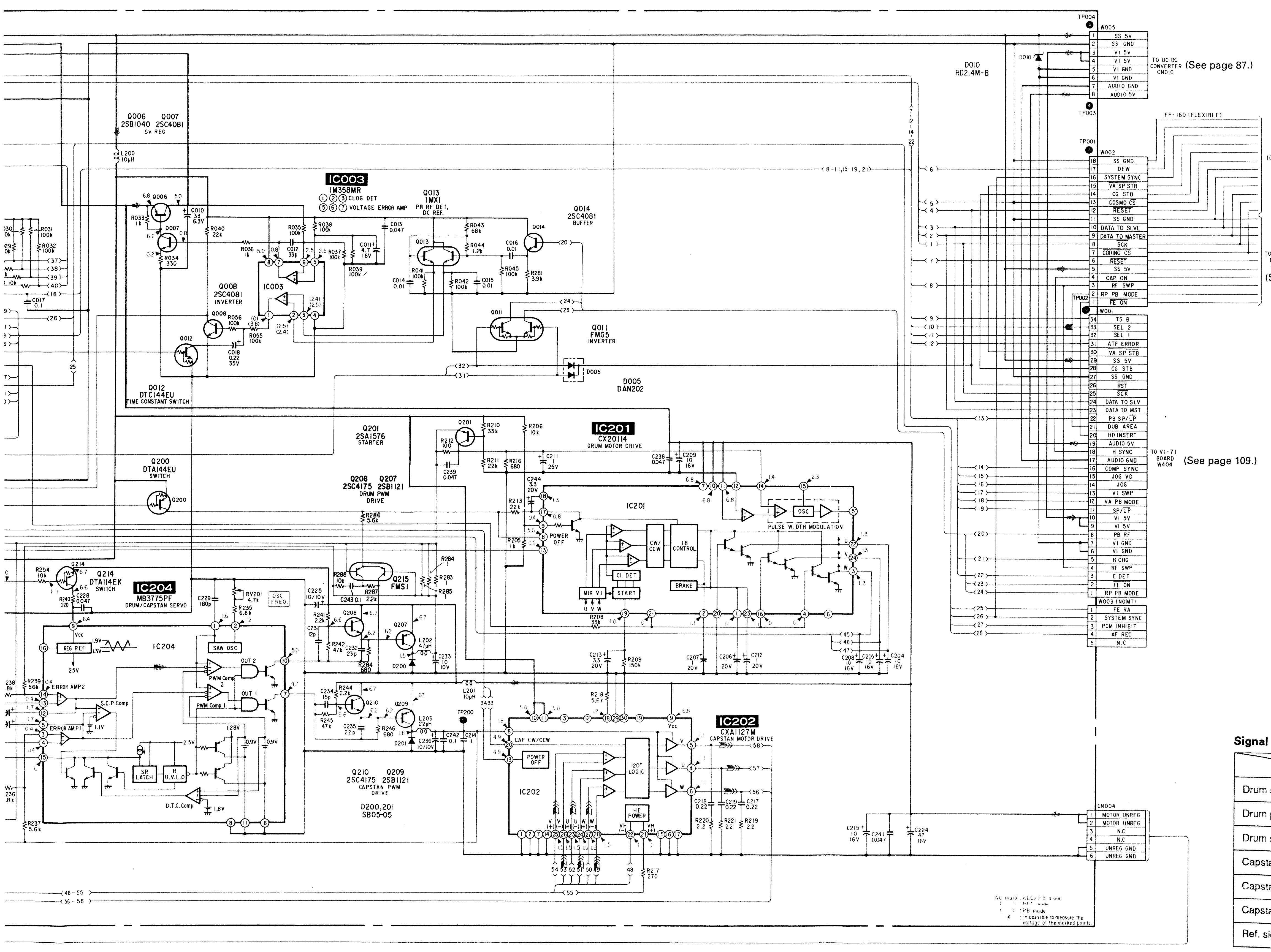
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MECHANISM BLOCK
(U MECHA)
(See page 103.)
TO MR-16 BOARD CN801
CN001
FP-161 BOARD
M903 LOADING MOTOR
DRUM MOTOR
M902 CAPSTAN
CAPSTAN MOTOR
HALL DEVICE
FG
FG, PG
M901 DRUM
DEW SENSOR
FP-89 BOARD (FLEXIBLE)
FP-90 BOARD (FLEXIBLE)
Q301 EE-TP109 TAPE END SENSOR
S901 CASSETTE DOWN
ENCODER MODE SW
D301 TLP907 S-REEL
D302 GL-452S TAPE T/E LED
Q302 EE-TP109 TAPE TOP SENSOR
D303 TLP907 T-REEL
S302 MP HG
ME/MP REC PROOF
CC-18P BOARD
D001 IMN10
D002 IMN10
D003 MA151WK
CN003
CHASSIS
BATTERY PACK
BATTERY TERMINAL
(See page 95.)
TO DM-23P BOARD CN550
TO DC-DC CONVERTER CN012
(See page 87.)
W061
W060
CN061
PS062 1.6A
PS061 1.6A
PS060 1.6A
L061 1μH
L062 1μH
L060 1μH
C060 0.001
FU-66P BOARD
SS-96P BOARD
CN002
W006
CN202
CN003
CN201
W004
TP006
TP005
IC001 CXP80116 SYSTEM CONTROL/MAIN SERVO
IC002 LB1631 LOADING MOTOR DRIVE
IC200 CX20115A FG.PG AMP
IC203 μPC358G2
⑤⑥⑦ INTEGRATOR
①②③ LPF
IC204 MB3775PF DRUM/CAPSTAN
Q001 2SC1623 END SENSE
Q003 2SC1623 TOP SENSE
Q005 DTC114EU TAPE TOP, END LED SWITCH
Q006 2SB1040 5V REG
Q012 DTC144EU TIME CONSTANT
Q200 DTA144EU SWITCH
Q203 DTA144EU DRUM ACCEL
Q205 DTC144EU PROTECT SWITCH
Q206 2SC4081 PROTECT
Q202 2SC4081 PROTECT
D202 MA141WA
Q204 DTC124EU SWITCH
Q211 DTC114EU INVERTER
Q212 IMT1 US COMP
Q213 DTC144EU SWITCH
Q214 DTA114EK SWITCH
L001 10μH
L200 10μH
X001 16MHz
SWITCH POSITION
BATT DOWN
LEVEL SHIFT
CAPSTAN FGX2 LOGIC
PRE
BUFF
COMP
LIM
SR LATCH
ERROR AMP2
ERROR AMP1
S.C.P Comp
48–55
56–58


16
17
18
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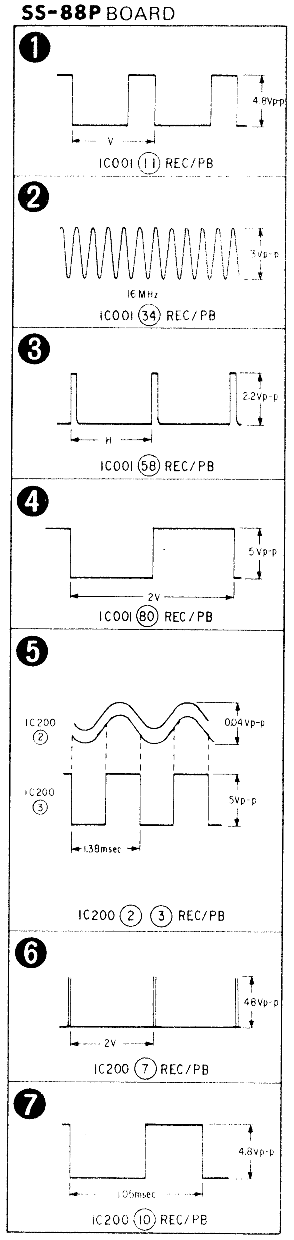
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
Q006 Q007
2SB1040 2SC4081
5V REG
L200 10μH
IC003
IM358MR
①②③ CLOG DET
⑤⑥⑦ VOLTAGE ERROR AMP
Q013
IMX1
PB RF DET, DC REF.
Q014
2SC4081
BUFFER
Q008
2SC4081
INVERTER
Q012
DTC144EU
TIME CONSTANT SWITCH
Q011
FMG5
INVERTER
D005
DAN202
D010
RD2.4M-B
Q200
DTA144EU
SWITCH
Q201
2SA1576
STARTER
Q208 Q207
2SC4175 2SB1121
DRUM PWM DRIVE
Q215
FMS1
IC201
CX20114
DRUM MOTOR DRIVE
PULSE WIDTH MODULATION
OSC
CW/CCW
IB CONTROL
CL DET
START
MIX V1
BRAKE
POWER OFF
Q214
DTA114EK
SWITCH
IC204
MB3775PF
DRUM/CAPSTAN SERVO
REG REF
SAW OSC
OUT 2
OUT 1
PWM Comp 1
PWM Comp 2
ERROR AMP2
ERROR AMP1
S.C.P Comp
SR LATCH
U.V.L.O
D.T.C. Comp
OSC FREQ.
Q210 Q209
2SC4175 2SB1121
CAPSTAN PWM DRIVE
D200,201
SB05-05
TP200
IC202
CXA1127M
CAPSTAN MOTOR DRIVE
CAP CW/CCW
POWER OFF
120° LOGIC
HE POWER
IC202
TP004
W005
1 SS 5V
2 SS GND
3 VI 5V
4 VI 5V
5 VI GND
6 VI GND
7 AUDIO GND
8 AUDIO 5V
TO DC-DC CONVERTER CN010 (See page 87.)
TP003
FP-160 (FLEXIBLE)
TP001
W002
18 SS GND
17 DEW
16 SYSTEM SYNC
15 VA SP STB
14 CG STB
13 COSMO CS
12 RESET
11 SS GND
10 DATA TO SLVE
9 DATA TO MASTER
8 SCK
7 CODING CS
6 RESET
5 SS 5V
4 CAP ON
3 RF SWP
2 RP PB MODE
1 FE ON
TO FD-14P BOARD CN101 (See page 137.)
TO TC-11P BOARD CN003 (See page 152.)
TP002
W001
34 TS B
33 SEL 2
32 SEL 1
31 ATF ERROR
30 VA SP STB
29 SS 5V
28 CG STB
27 SS GND
26 RST
25 SCK
24 DATA TO SLV
23 DATA TO MST
22 PB SP/LP
21 DUB AREA
20 HD INSERT
19 AUDIO 5V
18 H SYNC
17 AUDIO GND
16 COMP SYNC
15 JOG VD
14 JOG
13 VI SWP
12 VA PB MODE
11 SP/LP
10 VI 5V
9 VI 5V
8 PB RF
7 VI GND
6 VI GND
5 H CHG
4 RF SWP
3 E DET
2 FE ON
1 RP PB MODE
TO VI-71 BOARD W404 (See page 109.)
W003 (NOMT)
1 FE RA
2 SYSTEM SYNC
3 PCM INHIBIT
4 AF REC
5 N.C
CN004
1 MOTOR UNREG
2 MOTOR UNREG
3 N.C
4 N.C
5 UNREG GND
6 UNREG GND
No mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
* : Impossible to measure the voltage at the marked points


SS-88P BOARD
❶
4.8Vp-p
V
IC001 (11) REC/PB
❷
3Vp-p
16MHz
IC001 (34) REC/PB
❸
2.2Vp-p
H
IC001 (58) REC/PB
❹
5Vp-p
2V
IC001 (80) REC/PB
❺
IC200 ②
0.04Vp-p
IC200 ③
5Vp-p
1.39msec
IC200 ② ③ REC/PB
❻
4.8Vp-p
2V
IC200 ⑦ REC/PB
❼
4.8Vp-p
1.05msec
IC200 ⑩ REC/PB

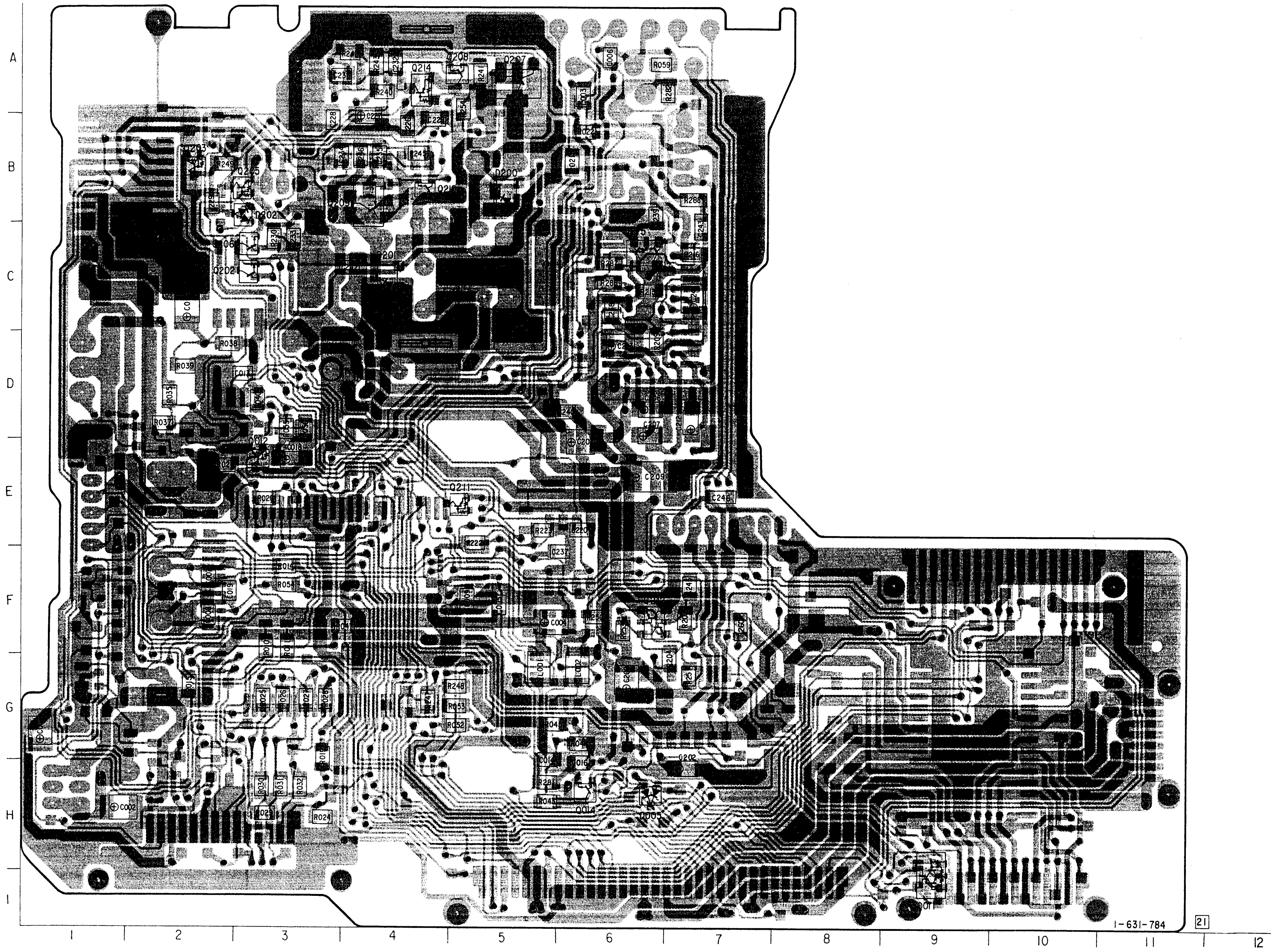
Signal path

	REC	REC/PB	PB
Drum speed servo		▻	
Drum phase servo		⊳	
Drum servo (speed and phase)		⋙	
Capstan speed servo		⊃	
Capstan phase servo		⊃⟩	
Capstan servo (speed and phase)		⊃⟩⟩	
Ref. signal	➤		

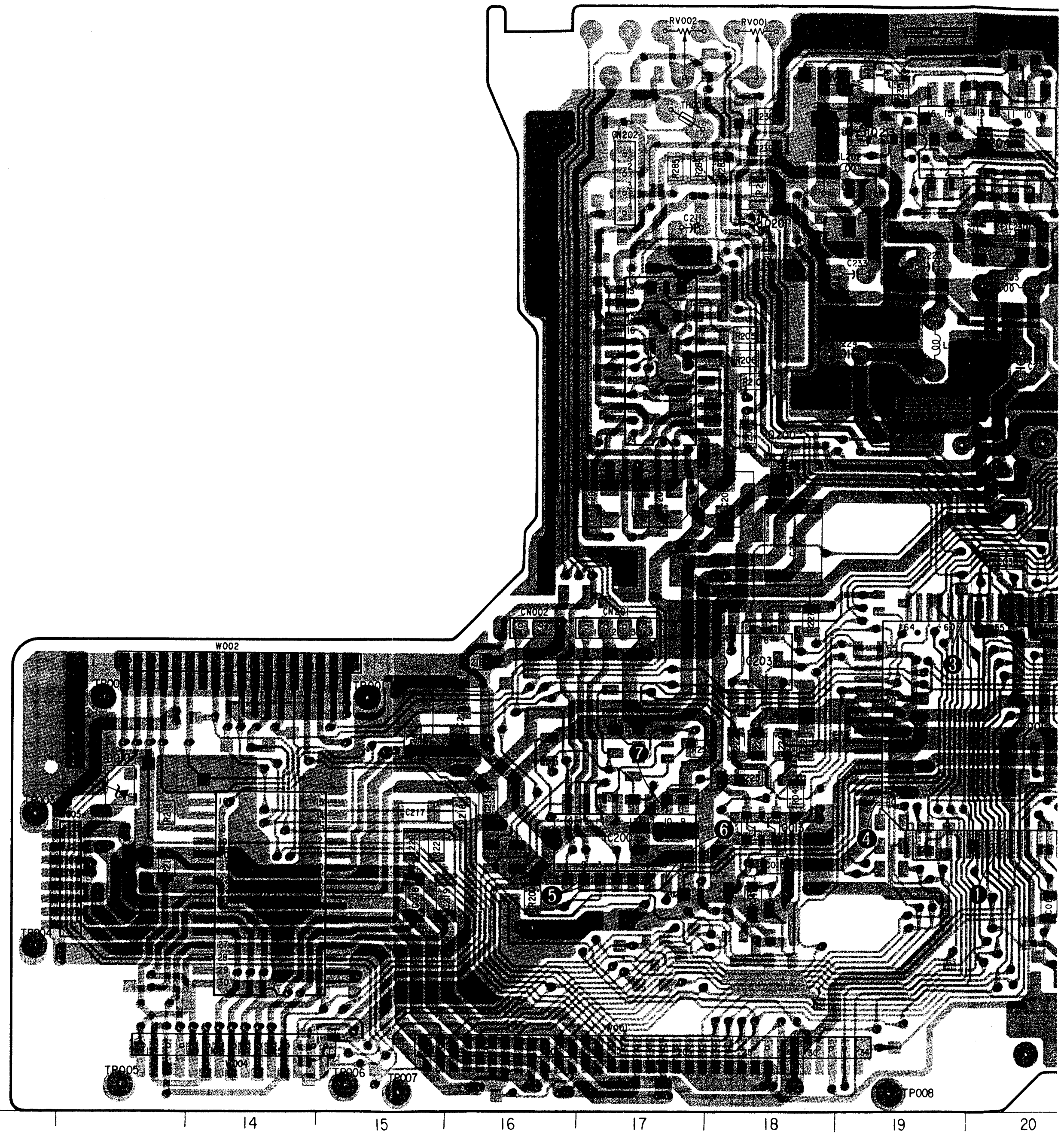
SS-96P (SERVO, SYSTEM CONTROL) FP-89 (MODE SW, SENSOR), FP-90 (TAPE SELECT SW, SENSOR), FU-66P (BATTERY TERMINAL), CC-18P (RELAY) PRINTED WIRING BOARDS

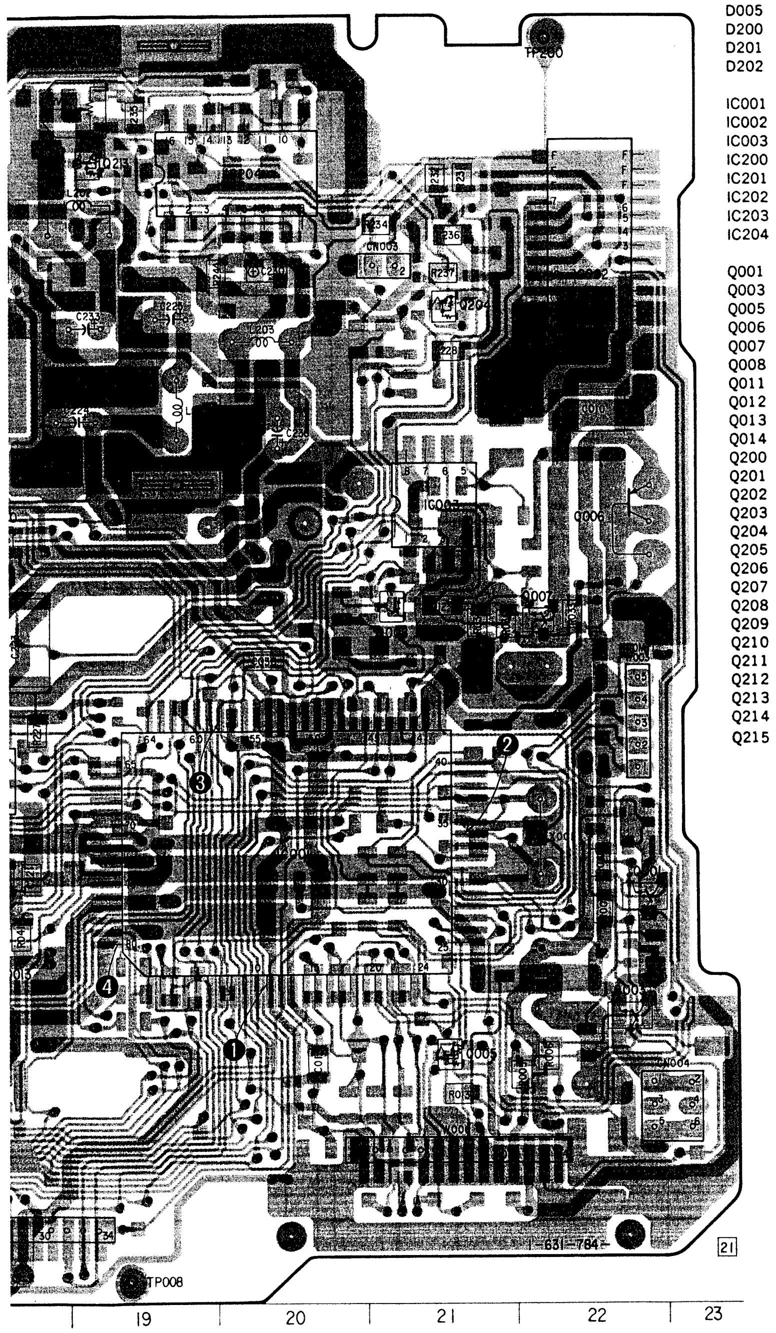
–Ref. No. SS-96P BOARD: 1000 series, FP-89 and FP-90 BOARDS: 2000 series. FU-66P and CC-18P BOARDS: 3000 series–

SS-96P BOARD (CONDUCTOR SIDE)


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
1-631-784
21

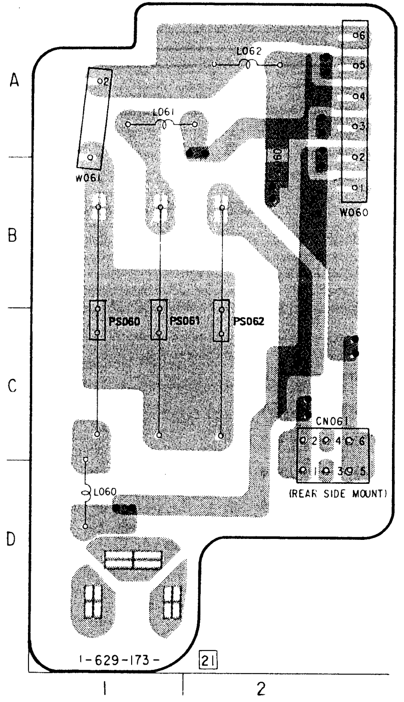
SS-96P BOARD (COMPONENT SIDE)


RV002
RV001
W002
TP004
TP005
TP006
TP007
TP008
14
15
16
17
18
19
20

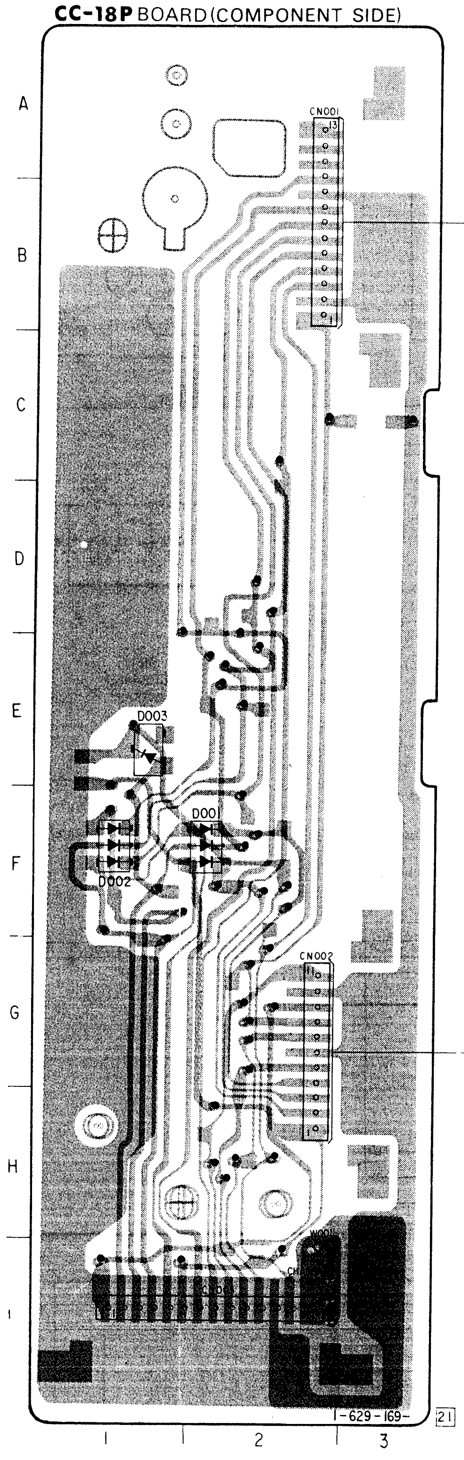

TP200
TP008
1-631-784-
21
19
20
21
22
23

D005	H-6
D200	B-5
D201	C-4
D202	C-3
IC001	F-20
IC002	B-22
IC003	D-21
IC200	G-17
IC201	C-17
IC202	G-14
IC203	F-18
IC204	A-20
Q001	F-22
Q003	G-22
Q005	G-21
Q006	D-22
Q007	D-22
Q008	D-21
Q011	I-9
Q012	E-3
Q013	G-18
Q014	H-6
Q200	D-18
Q201	B-18
Q202	C-2
Q203	B-2
Q204	B-21
Q205	B-3
Q206	C-2
Q207	A-5
Q208	A-5
Q209	B-4
Q210	B-5
Q211	E-5
Q212	F-6
Q213	A-4
Q214	A-4
Q215	C-6

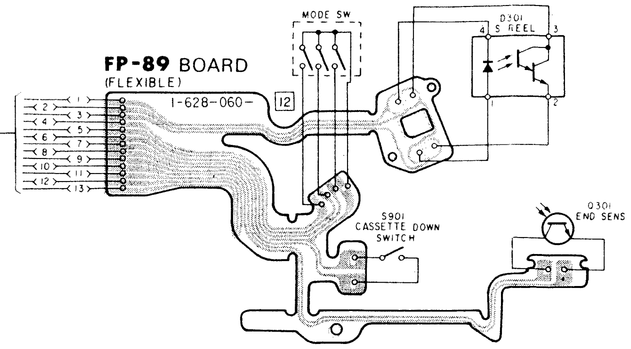
FU-66P BOARD (COMPONENT SIDE)


A
B
C
D
L062
L061
W061
W060
PS060
PS061
PS062
CN061
(REAR SIDE MOUNT)
L060
1-629-173-
21
1
2

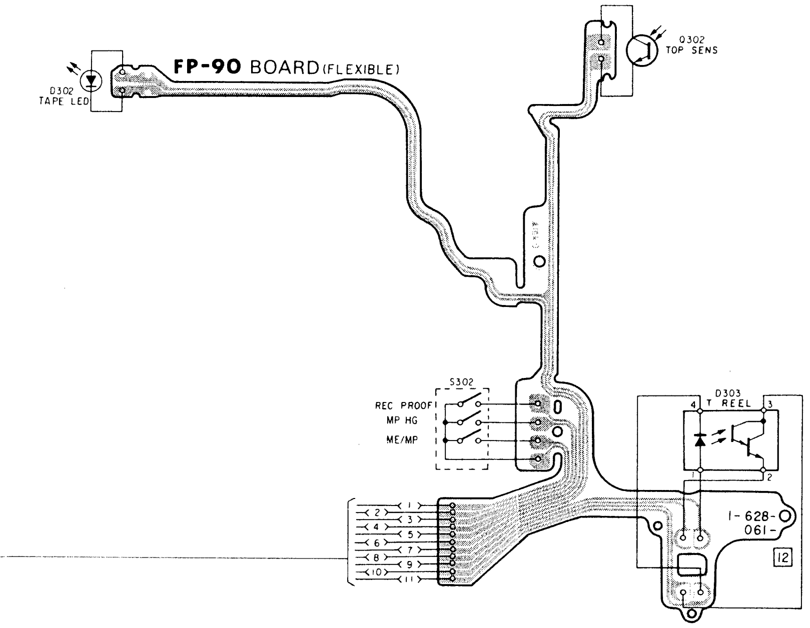
CC-18P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
CN001
CN002
D001
D002
D003
1-629-169-
21
1
2
3

FP-89 BOARD
(FLEXIBLE)

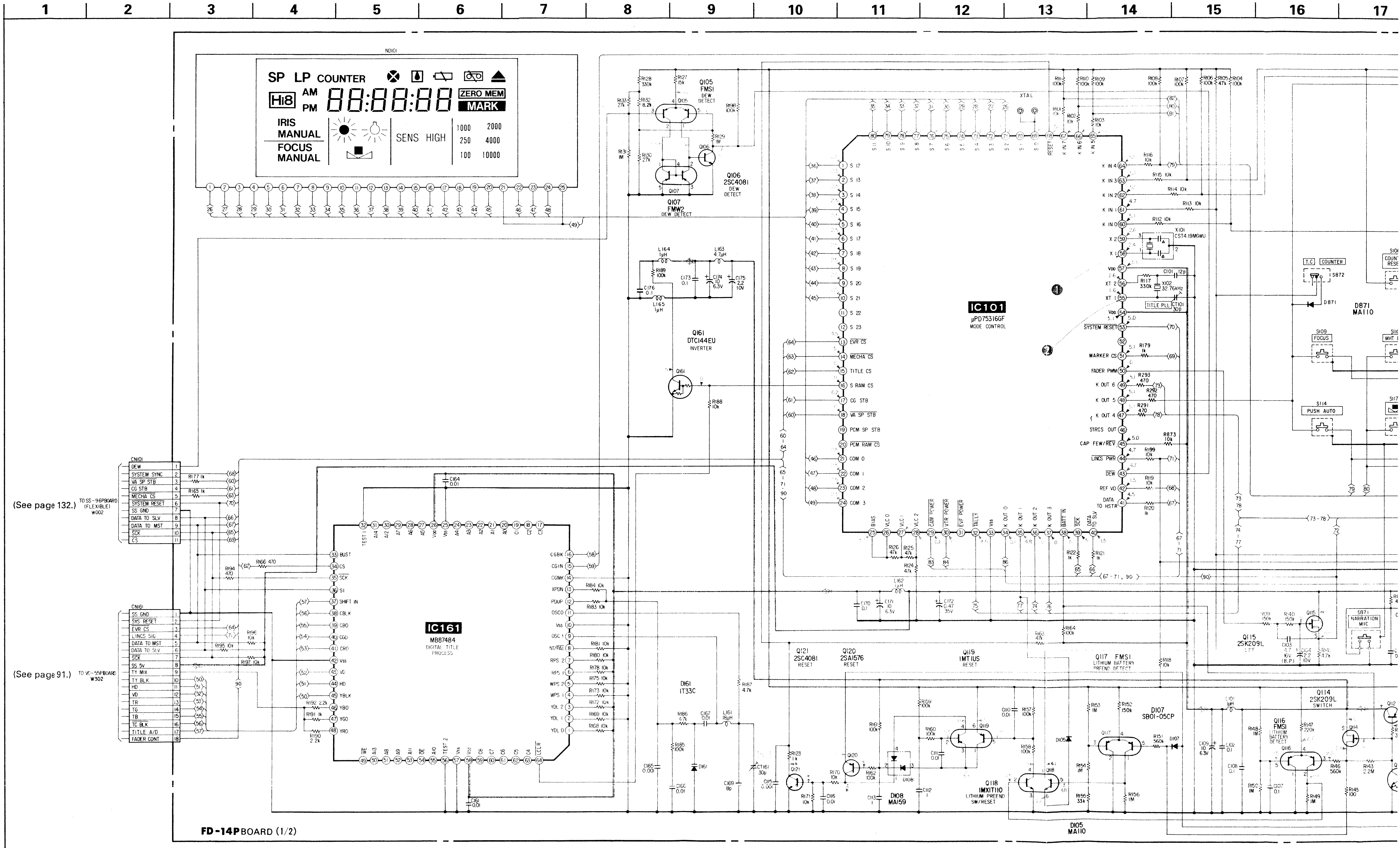

MODE SW
D301
S REEL
1-628-060-
12
S901
CASSETTE DOWN
SWITCH
Q301
END SENS

FP-90 BOARD (FLEXIBLE)


D302
TAPE LED
Q302
TOP SENS
S302
REC PROOF
MP HG
ME/MP
D303
T REEL
1-628-
061-
12

FD-14P (MODE CONTROL, DIGITAL TITLE), FC-26P (EDIT SERCH/POWER SW), TR-31P (LED), SW-94P (REC/STANDBY SW), LI-8P (LITHIUM BATTERY), FK-11P (FUNCTION SW), JC-3P (EXT JACK)

–Ref. No. FD-14P and SW-94P BOARDS: 1000 series, TR-31P and JC-3P BOARDS: 5000 series, FK-11P BOARD: 6000 series, FC-26P BOARD: 7000 series, LI-8P BOARD: 8000 series–


1
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7
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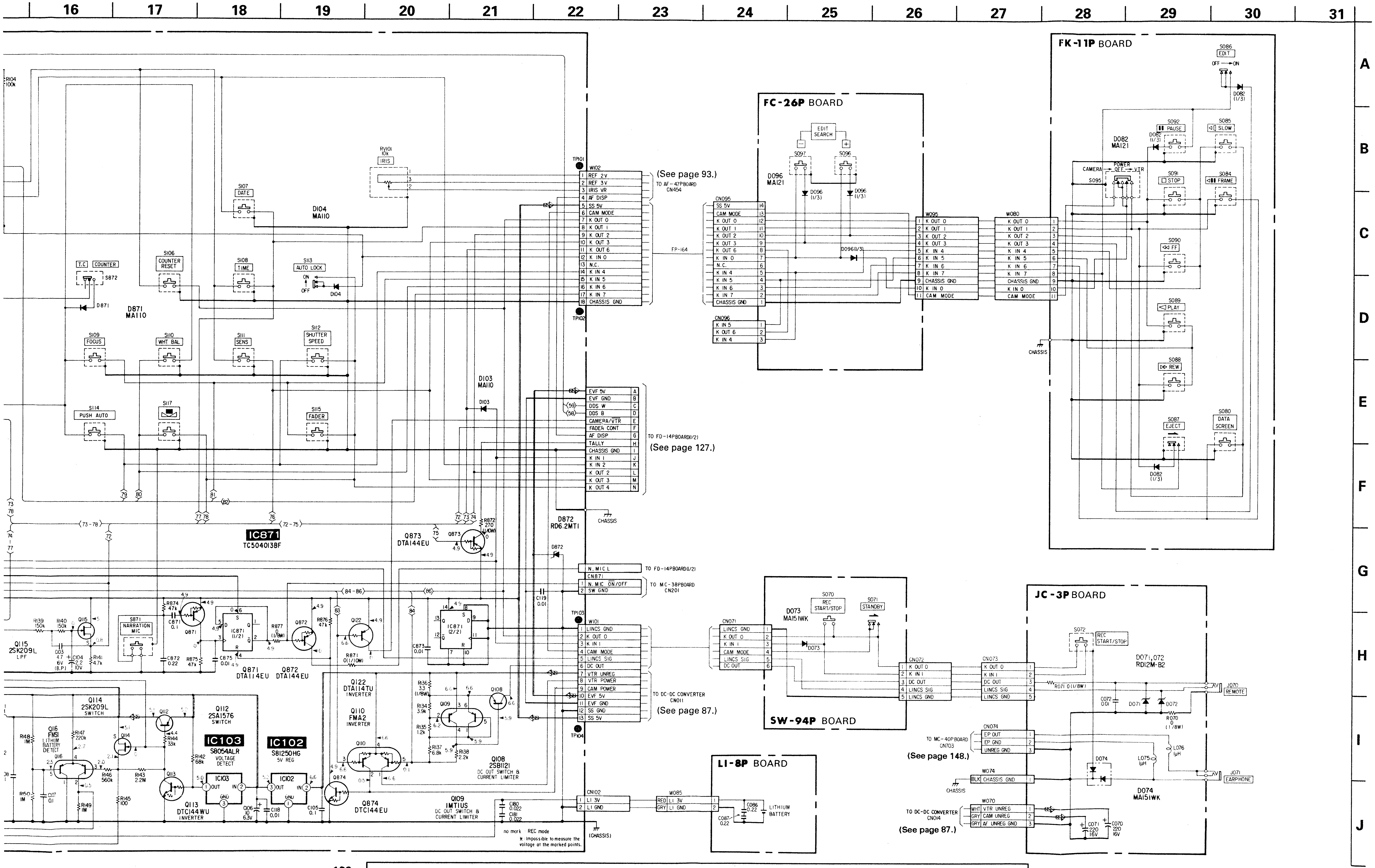
9
10
11
12
13
14
15
16
17
ND101
SP LP COUNTER
Hi8 AM PM 88:88:88
ZERO MEM
MARK
IRIS MANUAL
FOCUS MANUAL
SENS HIGH
1000 2000
250 4000
100 10000
Q105 FMS1 DEW DETECT
Q106 2SC4081 DEW DETECT
Q107 FMW2 DEW DETECT
L164 1µH
L163 4.7µH
L165 1µH
Q161 DTC144EU INVERTER
IC101
µPD75316GF
MODE CONTROL
X101 CST4.19MGWU
X102 32.76kHz
TITLE PLL
XTAL
SYSTEM RESET
MARKER CS
FADER PWM
K OUT 6
K OUT 5
K OUT 4
STRCS OUT
CAP FEW/REV
LINCS PWR
DEW
REF VD
DATA TO HSTR
K IN 4
K IN 3
K IN 2
K IN 1
K IN 0
EVR CS
MECHA CS
TITLE CS
S RAM CS
CG STB
VA SP STB
PCM SP STB
PCM RAM CS
COM 0
COM 1
COM 2
COM 3
CN101
DEW
SYSTEM SYNC
VA SP STB
CG STB
MECHA CS
SYSTEM RESET
SS GND
DATA TO SLV
DATA TO MST
SCK
CS
(See page 132.)
TO SS-96P BOARD (FLEXIBLE) W002
CN161
SS GND
SYS RESET
EVR CS
LINCS SIG
DATA TO MST
DATA TO SLV
SCK
SS 5V
TY MIX
TY BLK
HD
VD
TR
TG
TB
TC BLK
TITLE A/D
FADER CONT
(See page 91.)
TO VC-55P BOARD W302
IC161
MB87484
DIGITAL TITLE PROCESS
D161 1T33C
Q121 2SC4081 RESET
Q120 2SA1576 RESET
Q119 IMT1US RESET
Q117 FMS1 LITHIUM BATTERY PREEND DETECT
Q118 IMX1T110 LITHIUM PREEND SW/RESET
D108 MA159
D105 MA110
D107 SB01-05CP
Q115 2SK209L
Q116 FMS1 LITHIUM BATTERY DETECT
Q114 2SK209L SWITCH
D871 MA110
S872 T.C COUNTER
S109 FOCUS
S114 PUSH AUTO
S871 NARRATION MIC
FD-14P BOARD (1/2)


16
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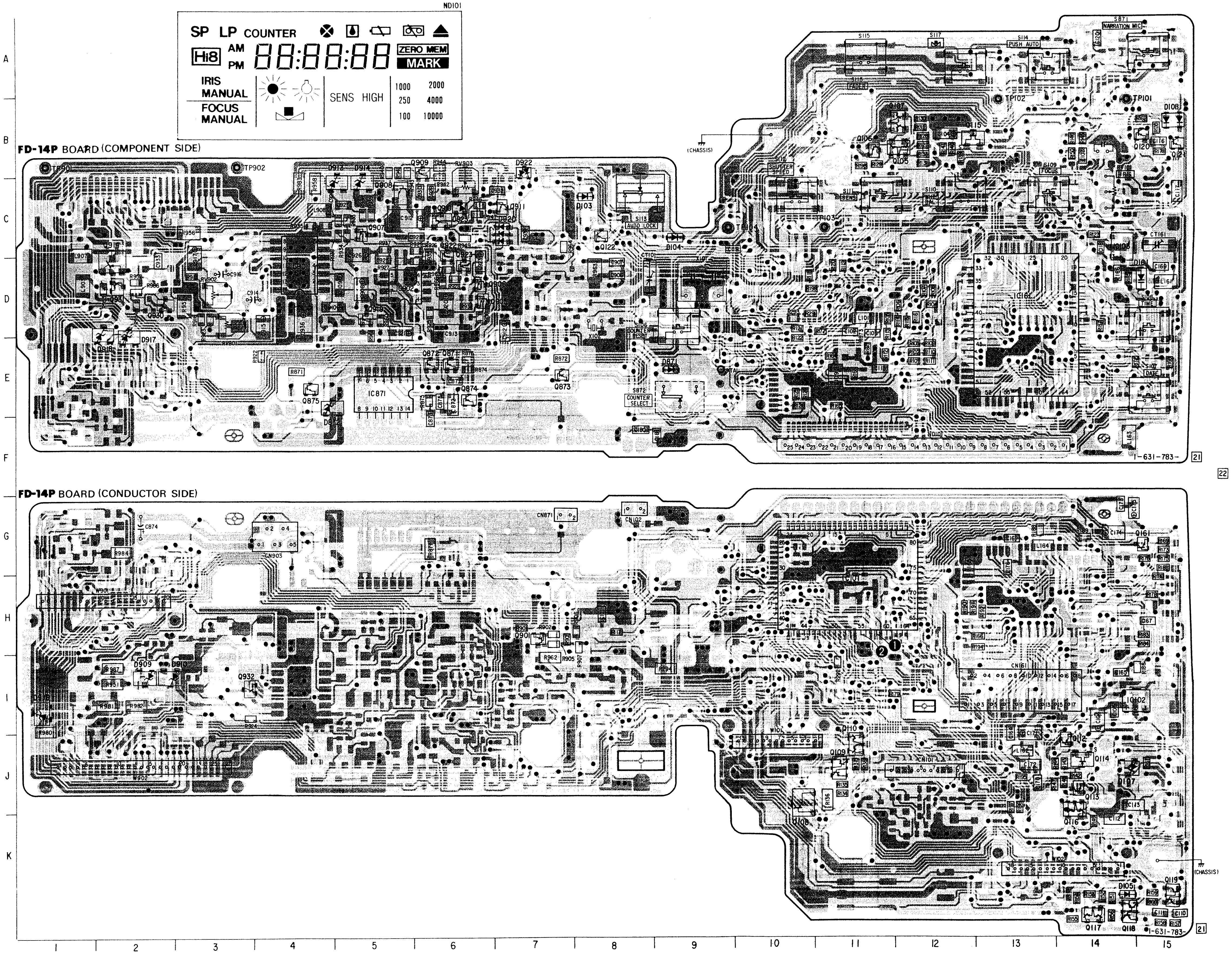
31
A
B
C
D
E
F
G
H
I
J
FC-26P BOARD
FK-11P BOARD
SW-94P BOARD
JC-3P BOARD
LI-8P BOARD
(See page 93.)
TO AF-47P BOARD CN454
(See page 127.)
TO FD-14P BOARD(1/2)
TO MC-38P BOARD CN201
TO DC-DC CONVERTER CN011
(See page 87.)
TO MC-40P BOARD CN703
(See page 148.)
TO DC-DC CONVERTER CN014
(See page 87.)
FP-164
W102
W101
CN102
CN871
CN095
CN096
W095
W080
CN071
CN072
CN073
CN074
W074
W070
W085
IC871
TC5040138F
IC103
S8054ALR
VOLTAGE DETECT
IC102
S81250HG
5V REG
Q115
2SK209L
LPF
Q114
2SK209L
SWITCH
Q116
FMS1
LITHIUM BATTERY DETECT
Q112
2SA1576
SWITCH
Q113
DTC144WU
INVERTER
Q871
DTA114EU
Q872
DTA144EU
Q873
DTA144EU
Q122
DTA114TU
INVERTER
Q110
FMA2
INVERTER
Q108
2SB1121
DC OUT SWITCH & CURRENT LIMITER
Q109
IMT1US
DC OUT SWITCH & CURRENT LIMITER
Q874
DTC144EU
D104
MA110
D871
MA110
D103
MA110
D872
RD6.2MT1
D096
MA121
D082
MA121
D073
MA151WK
D071, 072
RD12M-B2
D074
MA151WK
S107 DATE
S106 COUNTER RESET
S108 TIME
S113 AUTO LOCK
S109 FOCUS
S110 WHT BAL
S111 SENS
S112 SHUTTER SPEED
S114 PUSH AUTO
S117
S115 FADER
S871 NARRATION MIC
S872
T.C COUNTER
RV101 10k IRIS
EDIT SEARCH
S097
S096
S086 EDIT
S092 PAUSE
S085 SLOW
S095 POWER CAMERA OFF VTR
S091 STOP
S084 FRAME
S090 FF
S089 PLAY
S088 REW
S087 EJECT
S080 DATA SCREEN
S070 REC START/STOP
S071 STANDBY
S072 REC START/STOP
J070 REMOTE
J071 EARPHONE
LITHIUM BATTERY
REF 2V
REF 3V
IRIS VR
AF DISP
SS 5V
CAM MODE
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 6
K IN 0
N.C.
K IN 4
K IN 5
K IN 6
K IN 7
CHASSIS GND
EVF 5V
EVF GND
DDS W
DDS B
CAMERA/VTR
FADER CONT
TALLY
K IN 1
K IN 2
K OUT 4
N. MIC L
N. MIC ON/OFF
SW GND
LINCS GND
LINCS SIG
DC OUT
VTR UNREG
VTR POWER
CAM POWER
SS GND
LI 3V
LI GND
EP OUT
EP GND
UNREG GND
CAM UNREG
AF UNREG GND
TP101
TP102
TP103
TP104
CHASSIS
(CHASSIS)
no mark : REC mode
※ : Impossible to measure the voltage at the marked points.

MODE CONTROL/DIGITAL TITLE

MODE CONTROL/DIGITAL TITLE

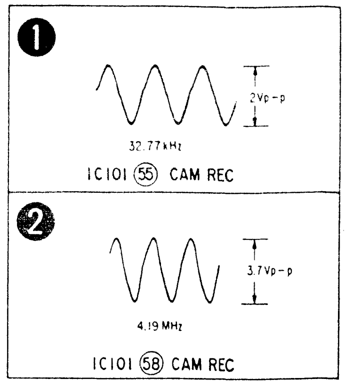
FD-14P (MODE CONTROL, DIGITAL TITLE), FC-26P (EDIT SERCH/POWER SW), TR-31P (LED), SW-94P (REC/STANDBY SW), LI-8P (LITHIUM BATTERY), FK-11P (FUNCTION SW), JC-3P (EXT JACK)

–Ref. No. FD-14P and SW-94P BOARDS: 1000 series, TR-31P and JC-3P BOARDS: 5000 series, FK-11P BOARD: 6000 series, FC-26P BOARD: 7000 series, LI-8P BOARD: 8000 series–

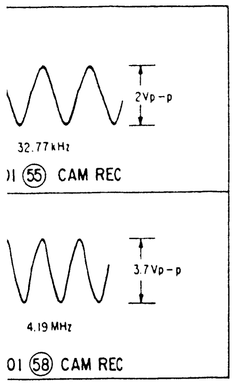

ND101
SP
LP
COUNTER
Hi8
AM
PM
88:88:88
ZERO MEM
MARK
IRIS MANUAL
FOCUS MANUAL
SENS HIGH
1000
2000
250
4000
100
10000
FD-14P BOARD (COMPONENT SIDE)
FD-14P BOARD (CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
(CHASSIS)
NARRATION MIC
PUSH AUTO
FADER
SHUTTER SPEED
FOCUS
AUTO LOCK
COUNTER RESET
COUNTER SELECT
TP101
TP102
TP103
TP901
TP902
IC101
IC161
IC871
IC901
IC902
CN101
CN161
CN871
CN903
W901
W902
1-631-783-
21
22

D102	C-8
D104	D-9
D105	L-15
D107	J-15
D108	B-15
D161	D-15
D901	E-2
D902	E-2
D903	E-1
D904	G-1
D905	F-1
D906	F-1
D907	G-1
D908	G-1
D919	C-7
D920	C-7
D922	C-7
D923	C-6
IC101	H-11
IC102	I-15
IC103	C-15
IC161	D-13
IC162	H-14
IC901	D-4
IC902	D-6
Q105	B-12
Q106	B-12
Q107	B-12
Q108	K-11
Q109	J-11
Q110	J-11
Q112	J-14
Q113	J-14
Q114	J-14
Q115	B-13
Q116	K-14
Q117	L-14
Q118	L-15
Q119	L-15
Q120	B-15
Q121	B-15
Q122	C-8
Q161	G-15
Q901	I-7
Q904	I-4
Q905	D-7
Q906	D-7
Q907	C-5
Q908	C-6
Q909	C-6
Q910	C-6
Q911	C-7
Q912	D-7
Q913	D-7
Q914	D-2
Q915	I-2
Q917	C-7
Q918	C-7
Q919	E-5
Q921	D-8
Q922	D-6
Q923	D-6

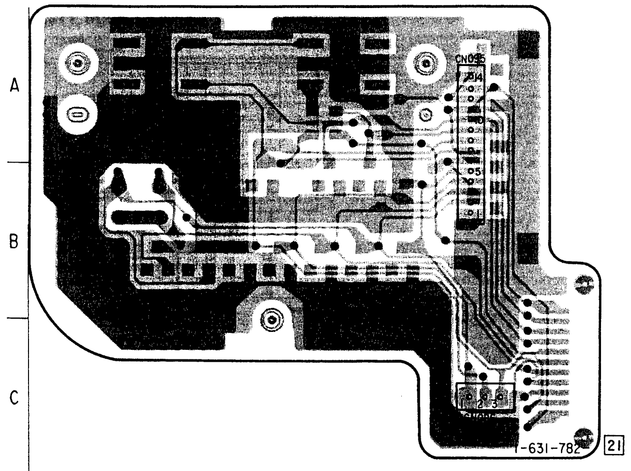
FD-14P BOARD



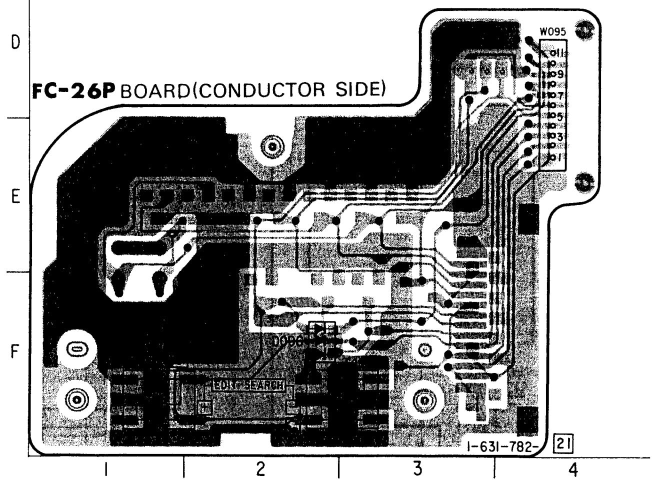
BOARD



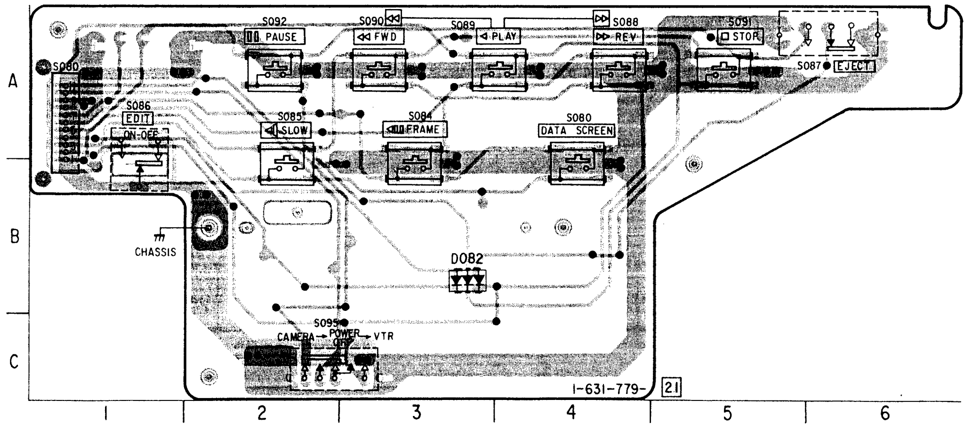
FC-26P BOARD (COMPONENT SIDE)


A
B
C
CN095
14
5
1 2 3
1-631-782
21

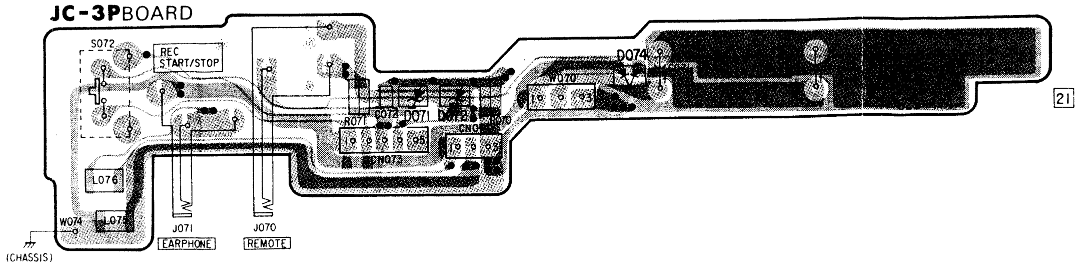
FC-26P BOARD(CONDUCTOR SIDE)


D
E
F
W095
11
9
7
5
3
1
D086
EDIT SEARCH
1-631-782-
21
1
2
3
4

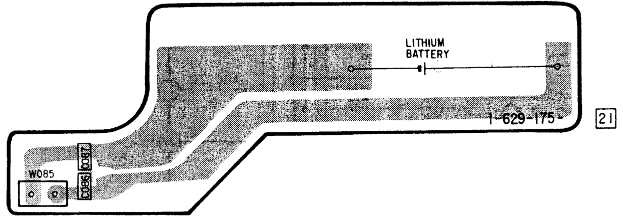
FK-11P BOARD (COMPONENT SIDE)


A
B
C
S092
PAUSE
S090
FWD
S089
PLAY
S088
REV
S091
STOP
S087
EJECT
S080
S086
EDIT
ON-OFF
S085
SLOW
S084
FRAME
S080
DATA SCREEN
CHASSIS
D082
S095
CAMERA
POWER
OFF
VTR
1-631-779-
21
1
2
3
4
5
6

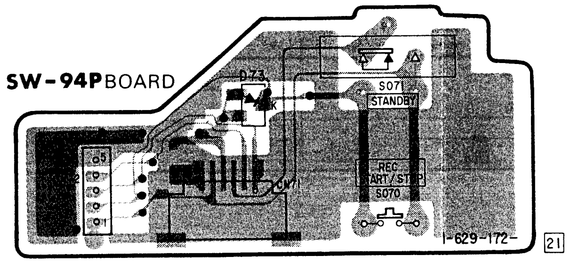
JC-3PBOARD

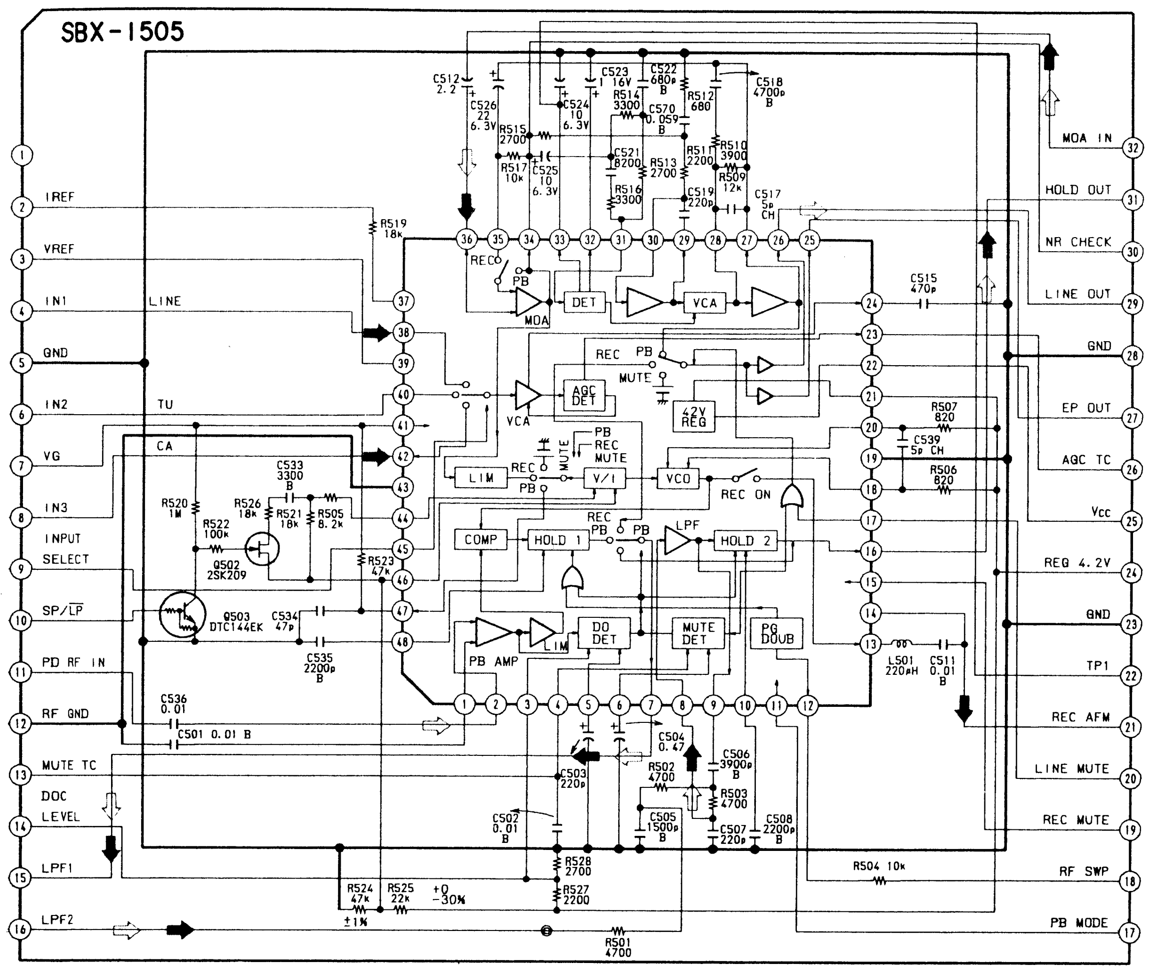

S072
REC
START/STOP
L076
W074
L075
(CHASSIS)
J071
EARPHONE
J070
REMOTE
R071
C074
D071
D072
R070
CN073
W070
D074
21

LI-8PBOARD


LITHIUM
BATTERY
W085
C087
C086
1-629-175-
21

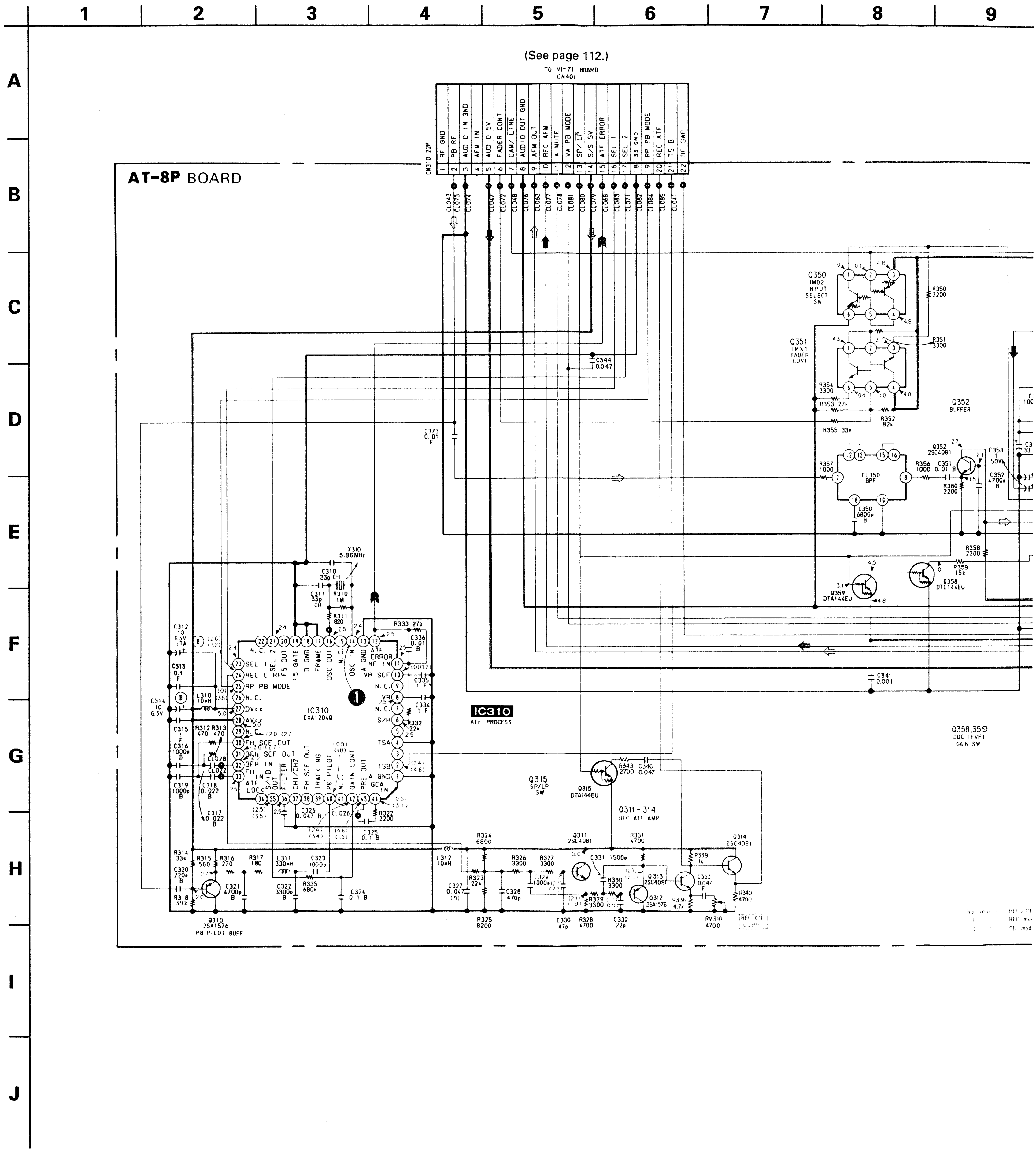
SW-94PBOARD

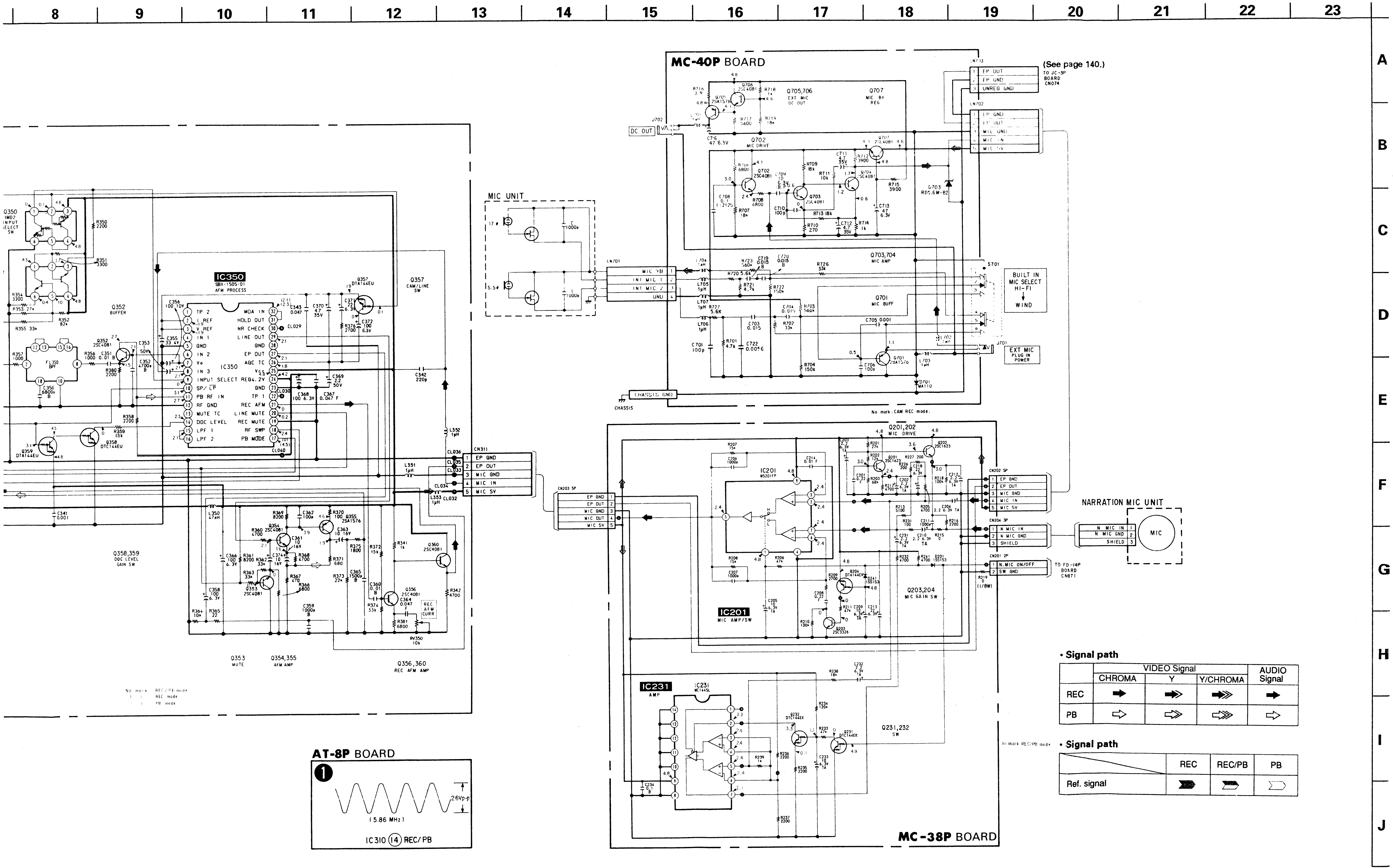

D73
S071
STANDBY
REC
START/STOP
S070
CN71
5
1
1-629-172-
21


SBX-1505
IREF
VREF
IN1
GND
IN2
VG
IN3
INPUT SELECT
SP/LP
PD RF IN
RF GND
MUTE TC
DOC LEVEL
LPF1
LPF2
LINE
TU
CA
MDA IN
HOLD OUT
NR CHECK
LINE OUT
GND
EP OUT
AGC TC
Vcc
REG 4.2V
GND
TP1
REC AFM
LINE MUTE
REC MUTE
RF SWP
PB MODE
MDA
DET
VCA
AGC DET
42V REG
LIM
V/I
VCO
COMP
HOLD 1
LPF
HOLD 2
PB AMP
LIM
DO DET
MUTE DET
PG DOUB
REC
PB
MUTE
REC ON
Q502 2SK209
Q503 DTC144EK
R504 10k
R501 4700
L501 220μH

MC-38P (MIC NARRATION, MIC AMP/SW), MC-40P (MIC AMP), AT-8P (ATF, AFM PROCESS) SCHEMATIC DIAGRAM

–Ref. No. MC-40P BOARD: 2000 series, AT-8P BOARD: 3000 series, MC-38P BOARD: 9000 series–


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
(See page 112.)
TO VI-71 BOARD CN401
CN310 22P
RF GND
PB RF
AUDIO IN GND
AFM IN
AUDIO 5V
FADER CONT
CAM/LINE
AUDIO OUT GND
AFM OUT
REC AFM
A MUTE
VA PB MODE
SP/LP
S/S 5V
ATF ERROR
SEL 1
SEL 2
SS GND
RP PB MODE
REC ATF
TS B
RF SWP
AT-8P BOARD
IC310 CXA1204Q
IC310 ATF PROCESS
X310 5.86MHz
Q350 IMD2 INPUT SELECT SW
Q351 IMX1 FADER CONT
Q352 BUFFER
Q352 2SC4081
FL350 BPF
Q358 DTC144EU
Q359 DTA144EU
Q358,359 DOC LEVEL GAIN SW
Q315 SP/LP SW
Q315 DTA144EU
Q311 - 314 REC ATF AMP
Q311 2SC4081
Q312 2SA1576
Q313 2SC4081
Q314 2SC4081
Q310 2SA1576 PB PILOT BUFF
RV310 4700
REC ATF
SEL 1
SEL 2
REC C RF
RP PB MODE
N.C.
DVcc
AVcc
FH SCF CUT
3FH SCF OUT
3FH IN
ATF LOCK
FS OUT
FS GATE
D GND
FRAME
OSC OUT
OSC IN
A GND
ATF ERROR
NF IN
VR
SCF
S/H
TSA
TSB
A GND
GCA IN
CH1/CH2
FH SCF OUT
TRACKING
PB PILOT
GAIN CONT
PRE OUT


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
MC-40P BOARD
(See page 140.)
TO JC-3P BOARD CN074
CN703
EP OUT
EP GND
UNREG GND
CN702
EP GND
EP OUT
MIC GND
MIC IN
MIC 5V
Q705,706 EXT MIC DC OUT
Q707 MIC B+ REG
Q702 MIC DRIVE
DC OUT
D703 RD5.6M-B2
MIC UNIT
CN701
MIC +B
INT MIC 1
INT MIC 2
GND
Q703,704 MIC AMP
Q701 MIC BUFF
S701
BUILT IN MIC SELECT
HI-FI
WIND
J701
EXT MIC PLUG IN POWER
D701 MA110
CHASSIS GND
CHASSIS
No mark : CAM REC mode.
IC350
SBX-1505-01 AFM PROCESS
TP 2
I REF
V REF
IN 1
GND
IN 2
Vo
IN 3
INPUT SELECT REG 4.2V
SP/LP
PB RF IN
RF GND
MUTE TC
DOC LEVEL
LPF 1
LPF 2
MOA IN
HOLD OUT
NR CHECK
LINE OUT
GND
EP OUT
AGC TC
Vcc
GND
TP 1
REC AFM
LINE MUTE
REC MUTE
RF SWP
PB MODE
Q350 IMD2 INPUT SELECT SW
Q352 BUFFER
Q357 CAM/LINE SW
FL350 BPF
Q359 DTA144EU
Q358 DTC144EU
CN311
EP GND
EP OUT
MIC GND
MIC IN
MIC 5V
Q358,359 DOC LEVEL GAIN SW
Q353 MUTE
Q354,355 AFM AMP
Q356,360 REC AFM AMP
RV350 10k
REC AFM CURR
No mark : REC/PB mode
( ) : REC mode
( ) : PB mode
AT-8P BOARD
①
2.6Vp-p
(5.86 MHz)
IC310 ⑭ REC/PB
CN203 5P
EP GND
EP OUT
MIC GND
MIC OUT
MIC 5V
IC201
M5201FP
MIC AMP/SW
Q201,202 MIC DRIVE
CN202 5P
EP GND
EP OUT
MIC GND
MIC IN
MIC 5V
CN204 3P
N MIC IN
N MIC GND
SHIELD
CN201 2P
N.MIC ON/OFF
SW GND
TO FD-14P BOARD CN871
Q203,204 MIC GAIN SW
NARRATION MIC UNIT
MIC
IC231
MC1445L
AMP
Q231,232 SW
MC-38P BOARD
No mark : REC/PB mode

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

• Signal path

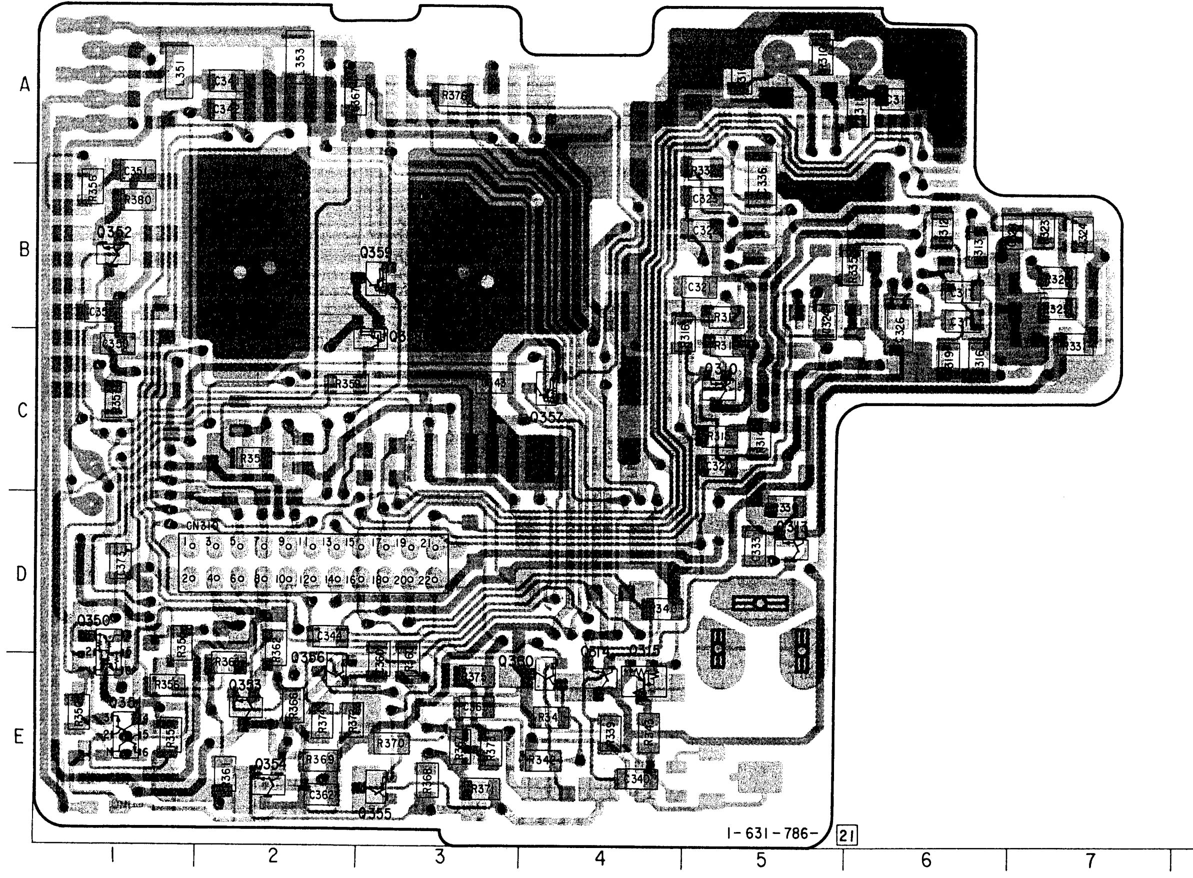
	REC	REC/PB	PB
Ref. signal	➡	➡	⇨

AUDIO AUDIO

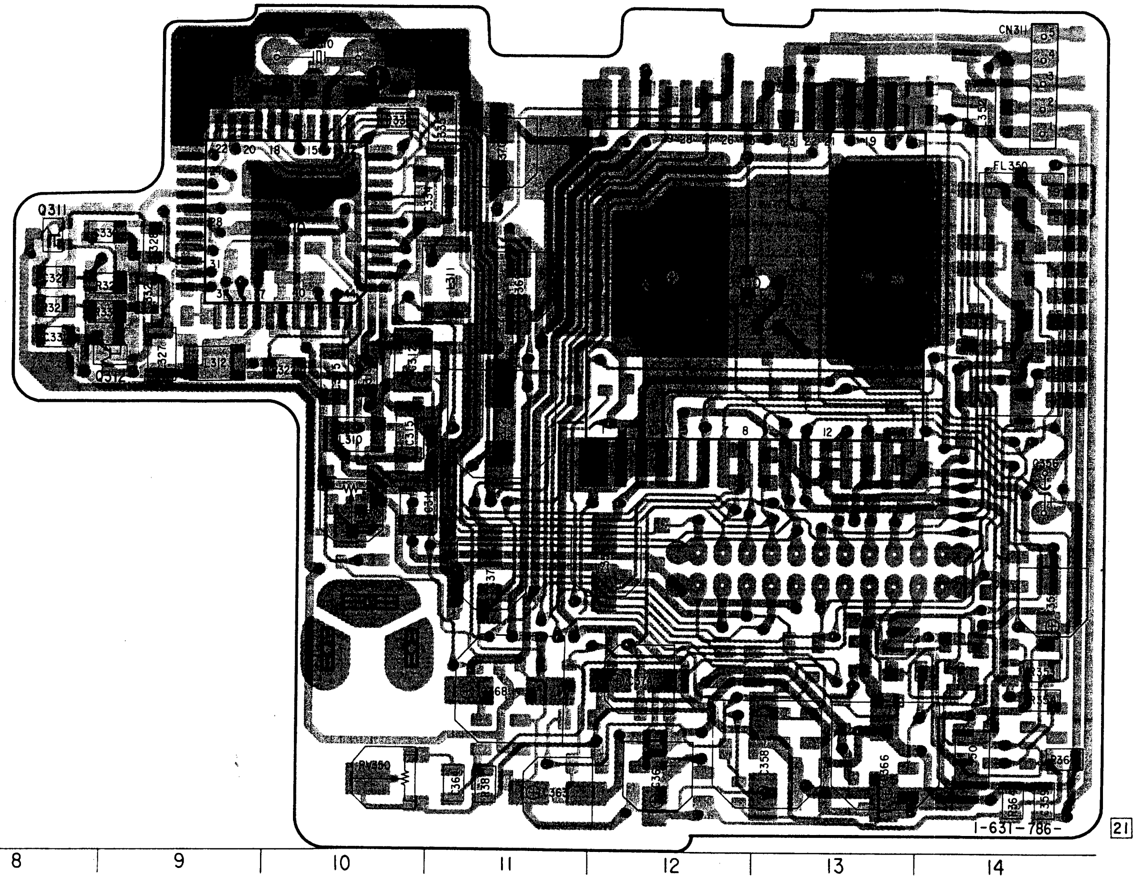
MC-38P (MIC NARRATION, MIC AMP/SW), MC-40P (MIC AMP), AT-8P (ATF, AFM PROCESS) PRINTED WIRING BOARDS

–Ref. No. MC-40P BOARD: 2000 series, AT-8P BOARD: 3000 series, MC-38P BOARD: 9000 series–

AT-8P BOARD(CONDUCTOR SIDE)

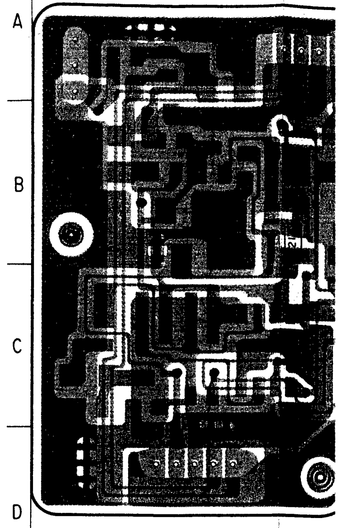

A
B
C
D
E
1
2
3
4
5
6
7
8
CN310
Q350
Q352
Q353
Q355
Q356
Q357
Q358
Q359
Q360
1-631-786-
21

AT-8P BOARD (COMPONENT SIDE)

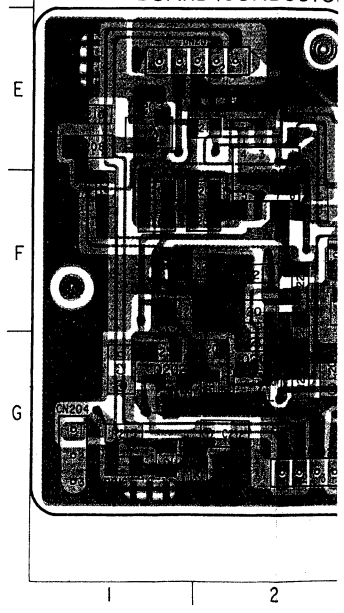

9
10
11
12
13
14
Q311
CN311
FL350
1-631-786-
21

IC310	B-10
IC350	B-12
Q310	C-5
Q311	B-8
Q312	C-9
Q313	D-5
Q314	E-4
Q350	D-1
Q351	E-1
Q352	B-1
Q353	E-2
Q354	E-2
Q355	E-3
Q356	E-2
Q357	C-4
Q358	C-3
Q359	B-3
Q360	E-4

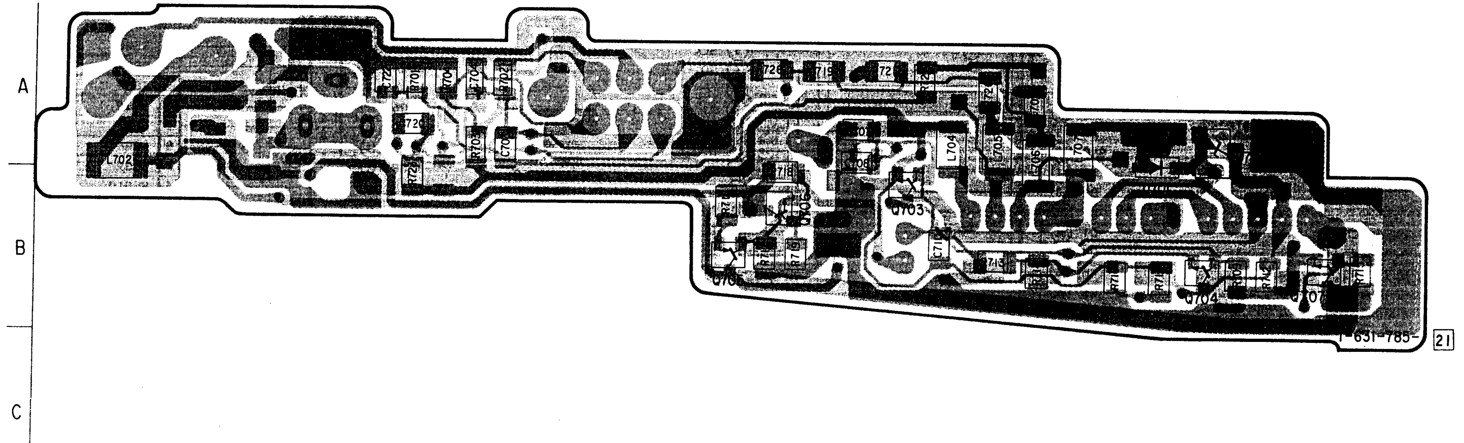
MC-38P BOARD (COMPONEN



MC-38P BOARD (CONDUCTO

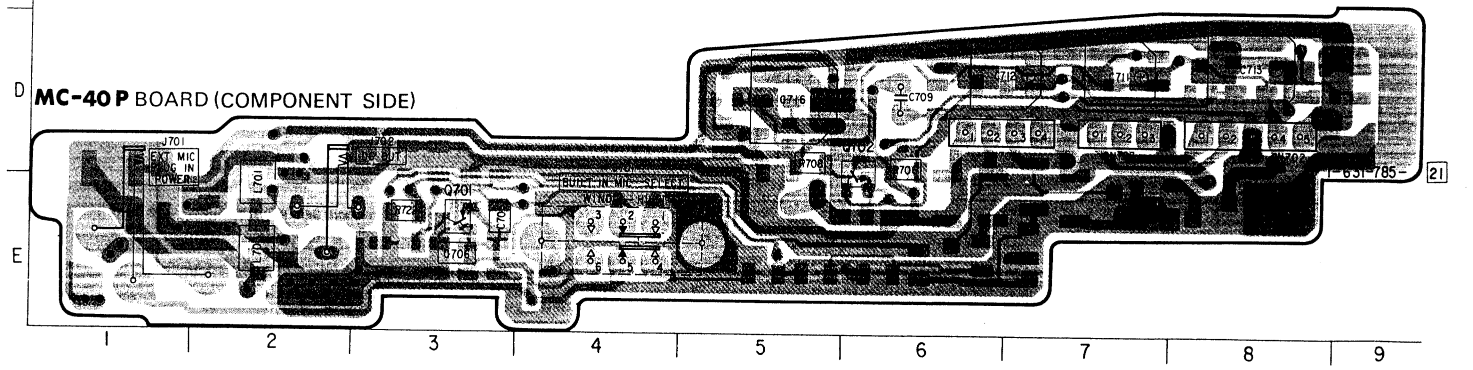

E
F
G
CN204
1
2

MC-40P BOARD (CONDUCTOR SIDE)

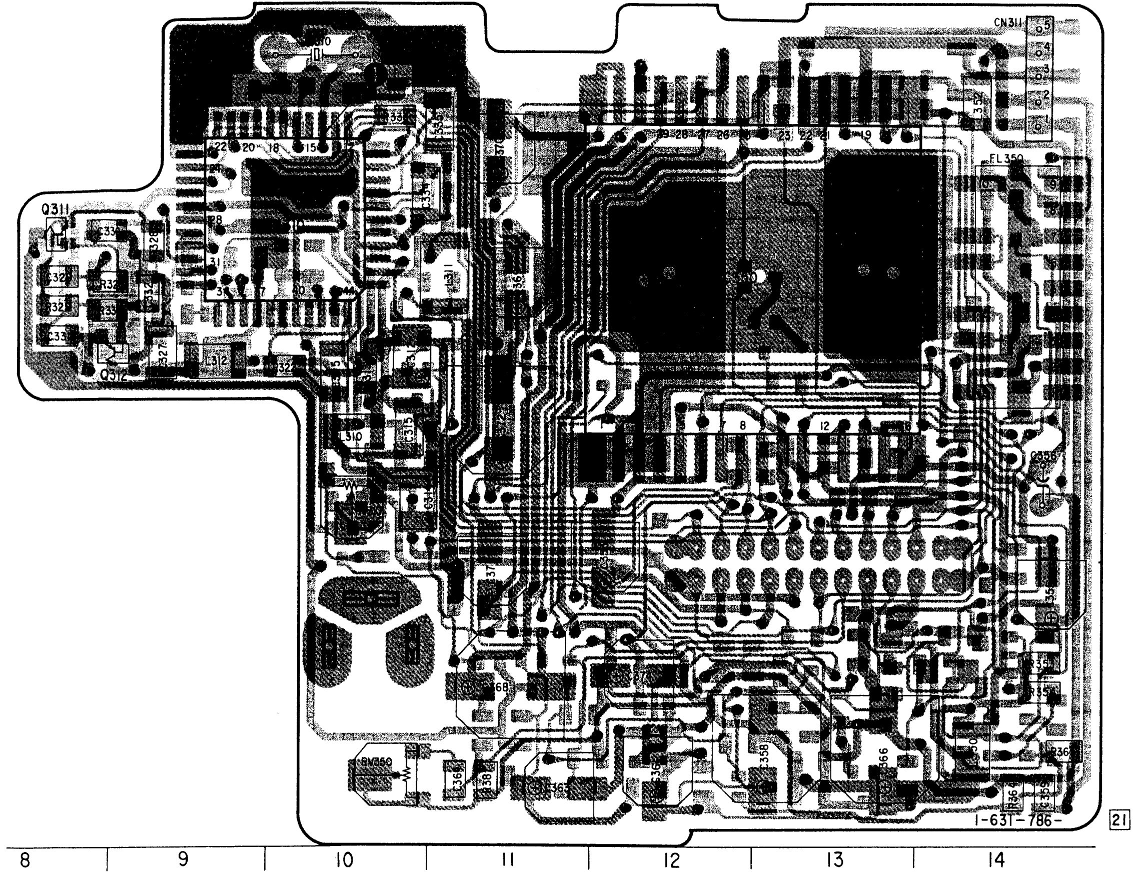

A
B
Q702
Q703
Q704
L704
1-631-785-
21

D701	A-8
Q701	E-3
Q702	D-6
Q703	B-6
Q704	B-8
Q705	B-5
Q706	B-5
Q707	B-8

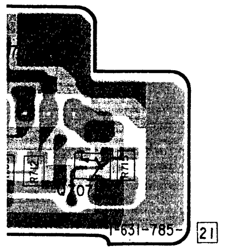
MC-40P BOARD (COMPONENT SIDE)


C
D
E
J701
EXT MIC
PLUG IN
POWER
Q701
Q702
C709
1-631-785-
21
1
2
3
4
5
6
7
8
9

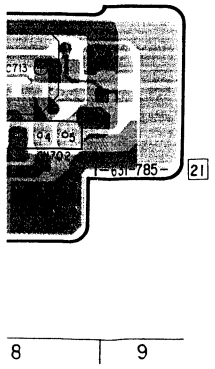
AT-8P BOARD (COMPONENT SIDE)


CN311
Q311
FL350
1-631-786-
21
8
9
10
11
12
13
14

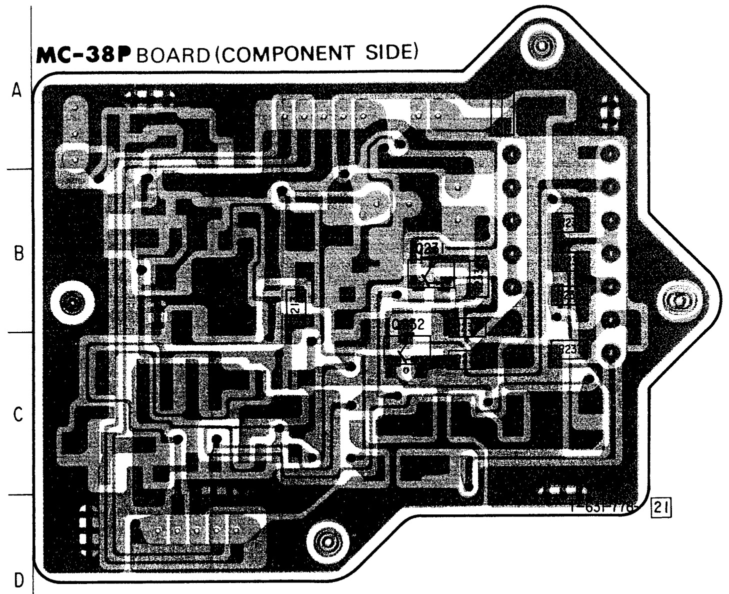
IC310	B-10
IC350	B-12
Q310	C-5
Q311	B-8
Q312	C-9
Q313	D-5
Q314	E-4
Q350	D-1
Q351	E-1
Q352	B-1
Q353	E-2
Q354	E-2
Q355	E-3
Q356	E-2
Q357	C-4
Q358	C-3
Q359	B-3
Q360	E-4



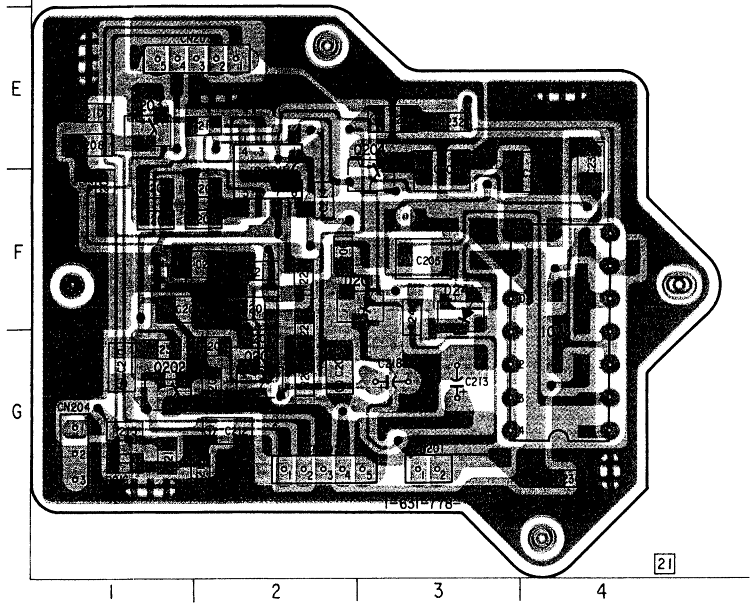
D701	A-8
Q701	E-3
Q702	D-6
Q703	B-6
Q704	B-8
Q705	B-5
Q706	B-5
Q707	B-8


C713
1-631-785-
21
8
9

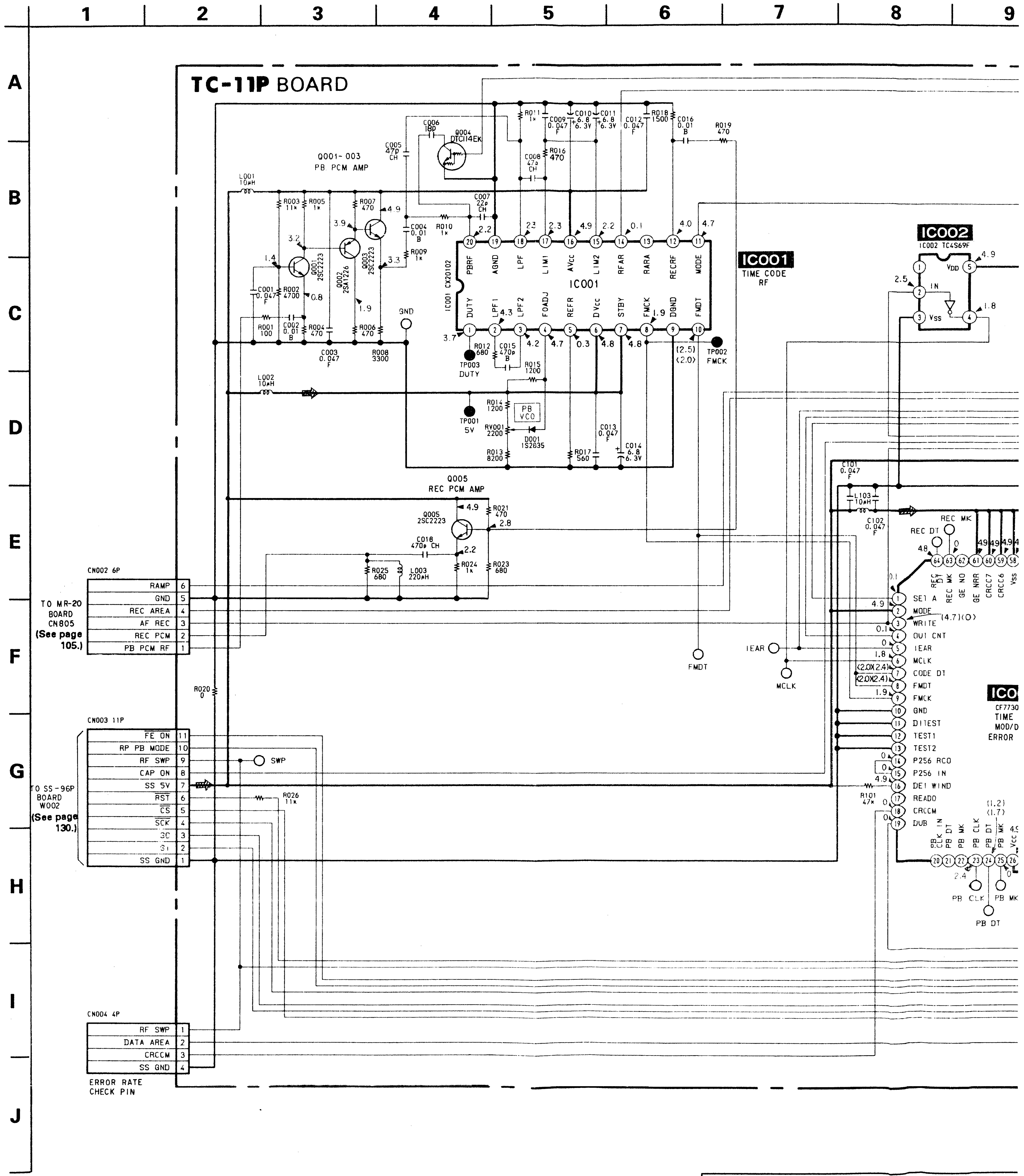
MC-38P BOARD (COMPONENT SIDE)


A
B
C
D
1-631-778-
21

MC-38P BOARD (CONDUCTOR SIDE)

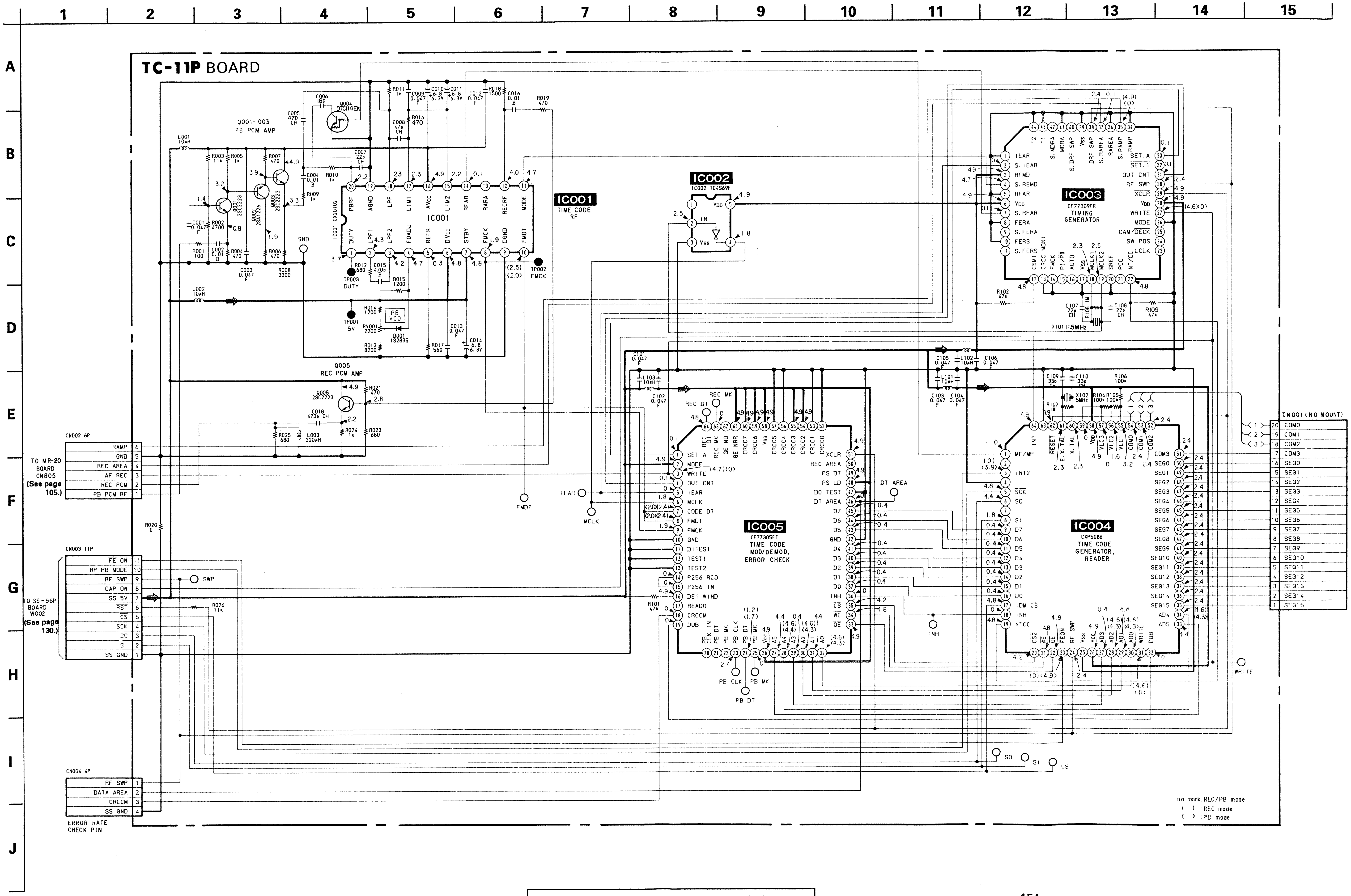

E
F
G
CN204
C205
C213
1-631-778-
21
1
2
3
4

TC-11P (TIME CODE) SCHEMATIC DIAGRAM
–Ref. No. TC-11P BOARD: 2000 series–



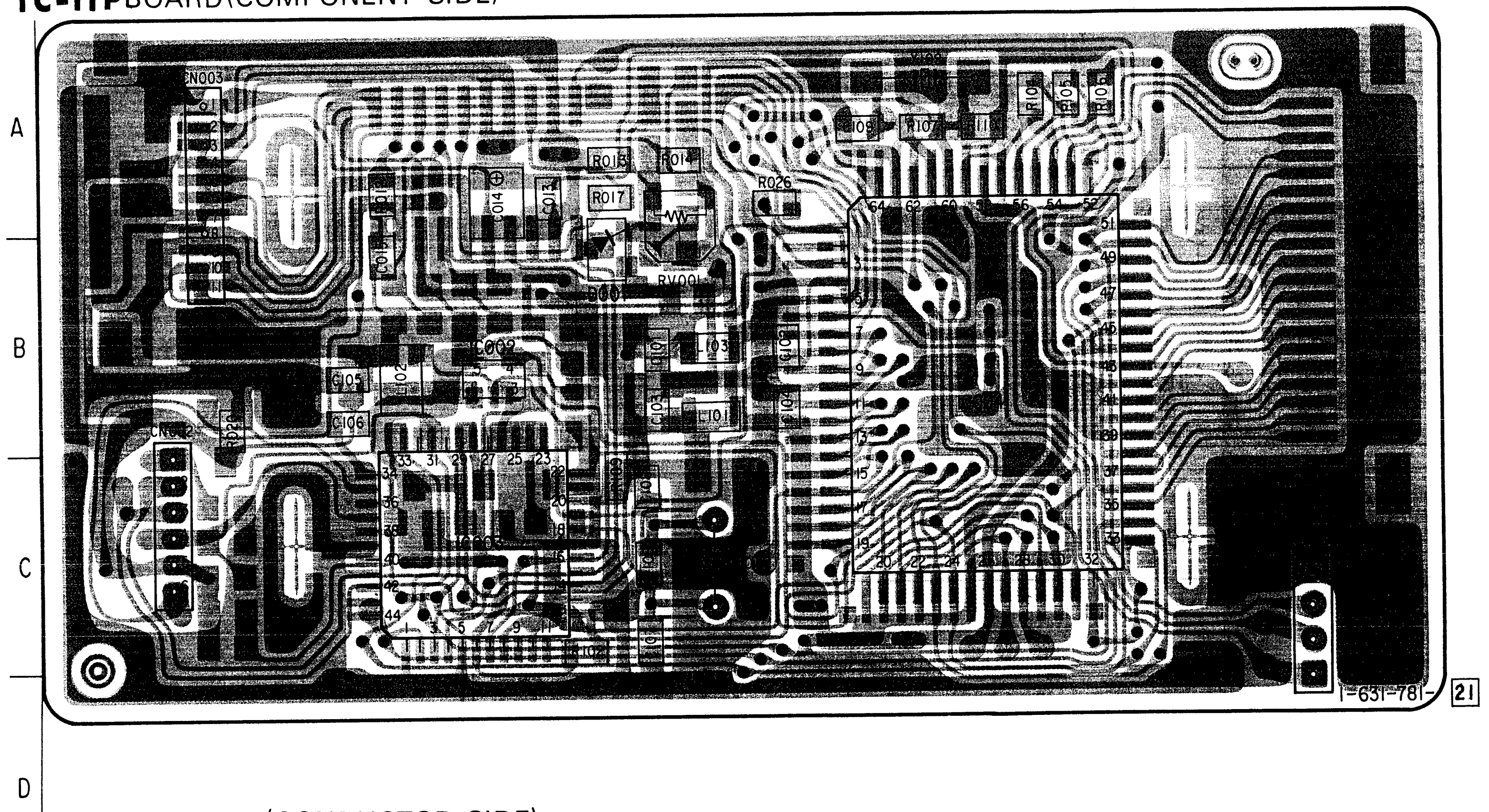
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
TC-11P BOARD
Q001- 003
PB PCM AMP
Q004
DTC114EK
Q001
2SC2223
Q002
2SA1226
Q003
2SC2223
IC001 CX20102
IC001
TIME CODE
RF
PBRF
AGND
LPF
LIM1
AVcc
LIM2
RFAR
RARA
RECRF
MODE
DUTY
LPF1
LPF2
FOADJ
REFR
DVcc
STBY
FMCK
DGND
FMDT
TP003
DUTY
TP001
5V
TP002
FMCK
PB
VCO
D001
1S2835
L001
10µH
L002
10µH
GND
Q005
REC PCM AMP
Q005
2SC2223
L003
220µH
IC002
IC002 TC4S69F
VDD
IN
VSS
CN002 6P
RAMP
GND
REC AREA
AF REC
REC PCM
PB PCM RF
TO MR-20
BOARD
CN805
(See page
105.)
CN003 11P
FE ON
RP PB MODE
RF SWP
CAP ON
SS 5V
RST
CS
SCK
SO
SI
SS GND
TO SS-96P
BOARD
W002
(See page
130.)
SWP
CN004 4P
RF SWP
DATA AREA
CRCCM
SS GND
ERROR RATE
CHECK PIN
FMDT
IEAR
MCLK
REC DT
REC MK
SET A
MODE
WRITE
OUT CNT
IEAR
MCLK
CODE DT
FMDT
FMCK
GND
DITEST
TEST1
TEST2
P256 RCO
P256 IN
DET WIND
READO
CRCCM
DUB
PB CLK
PB MK
PB DT
IC0
CF7730
TIME
MOD/D
ERROR

TC-11P (TIME CODE) SCHEMATIC DIAGRAM
–Ref. No. TC-11P BOARD: 2000 series–

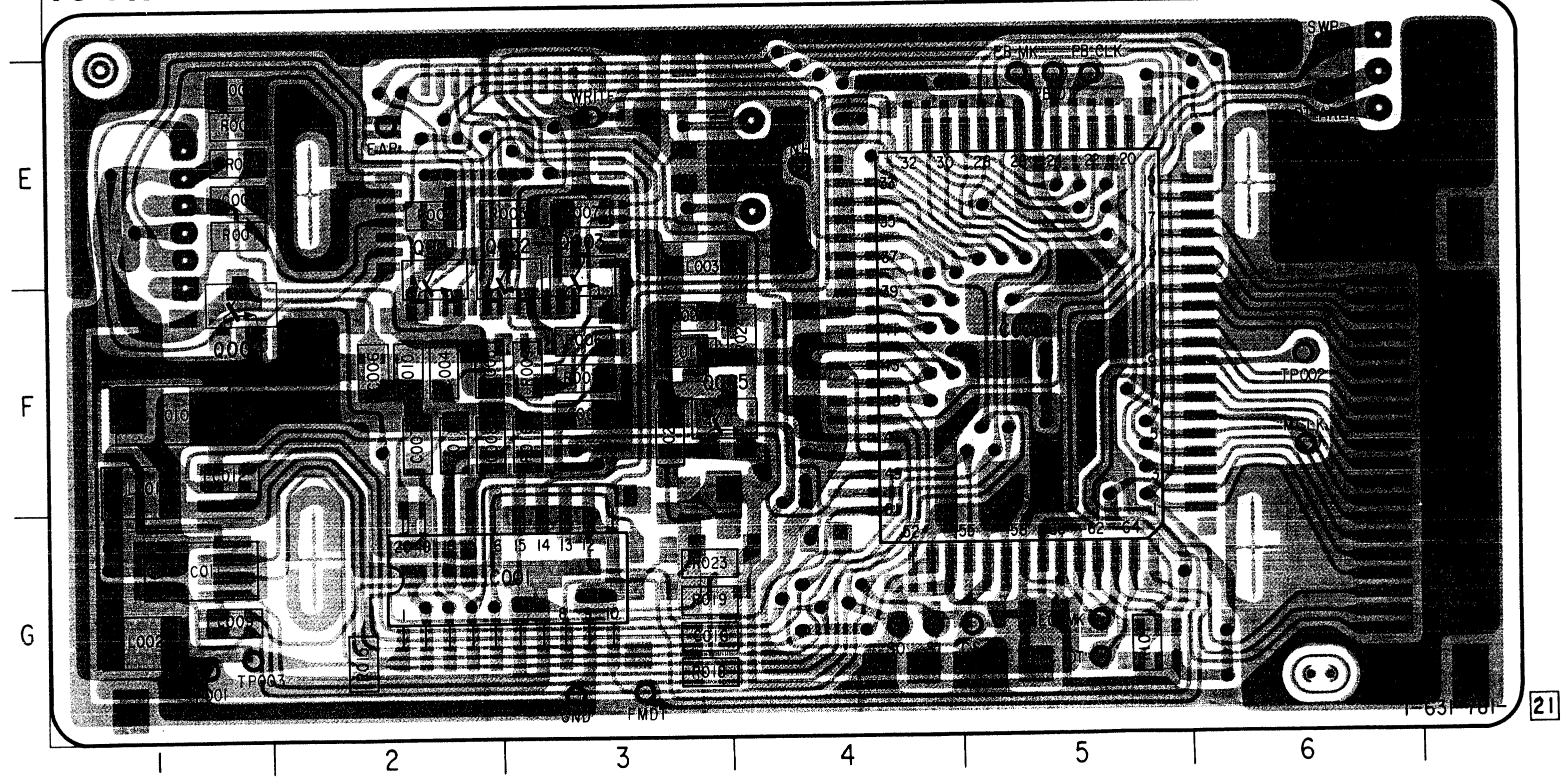

TC-11P BOARD
Q001-003 PB PCM AMP
IC001 TIME CODE RF
IC001 CX20102
IC002 TC4S69F
IC003 CF77309FR TIMING GENERATOR
IC004 CXP5086 TIME CODE GENERATOR, READER
IC005 CF77305FT TIME CODE MOD/DEMOD, ERROR CHECK
Q005 REC PCM AMP
PB VCO
TP001 5V
TP002 FMCK
TP003 DUTY
X101 11.5MHz
X102 5MHz
CN002 6P
RAMP
GND
REC AREA
AF REC
REC PCM
PB PCM RF
TO MR-20 BOARD CN805 (See page 105.)
CN003 11P
FE ON
RP PB MODE
RF SWP
CAP ON
SS 5V
RST
CS
SCK
SO
SI
SS GND
TO SS-96P BOARD W002 (See page 130.)
CN004 4P
RF SWP
DATA AREA
CRCCM
SS GND
ERROR RATE CHECK PIN
CN001 (NO MOUNT)
COM0
COM1
COM2
COM3
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
FMDT
IEAR
MCLK
DT AREA
INH
WRITE
REC DT
REC MK
PB CLK
PB MK
PB DT
SWP
SO
SI
CS
no mark:REC/PB mode
( ) :REC mode
〈 〉 :PB mode

TC-11P (TIME CODE) SCHEMATIC DIAGRAM
–Ref. No. TC-11P BOARD: 2000 series–

TC-11P BOARD (COMPONENT SIDE)

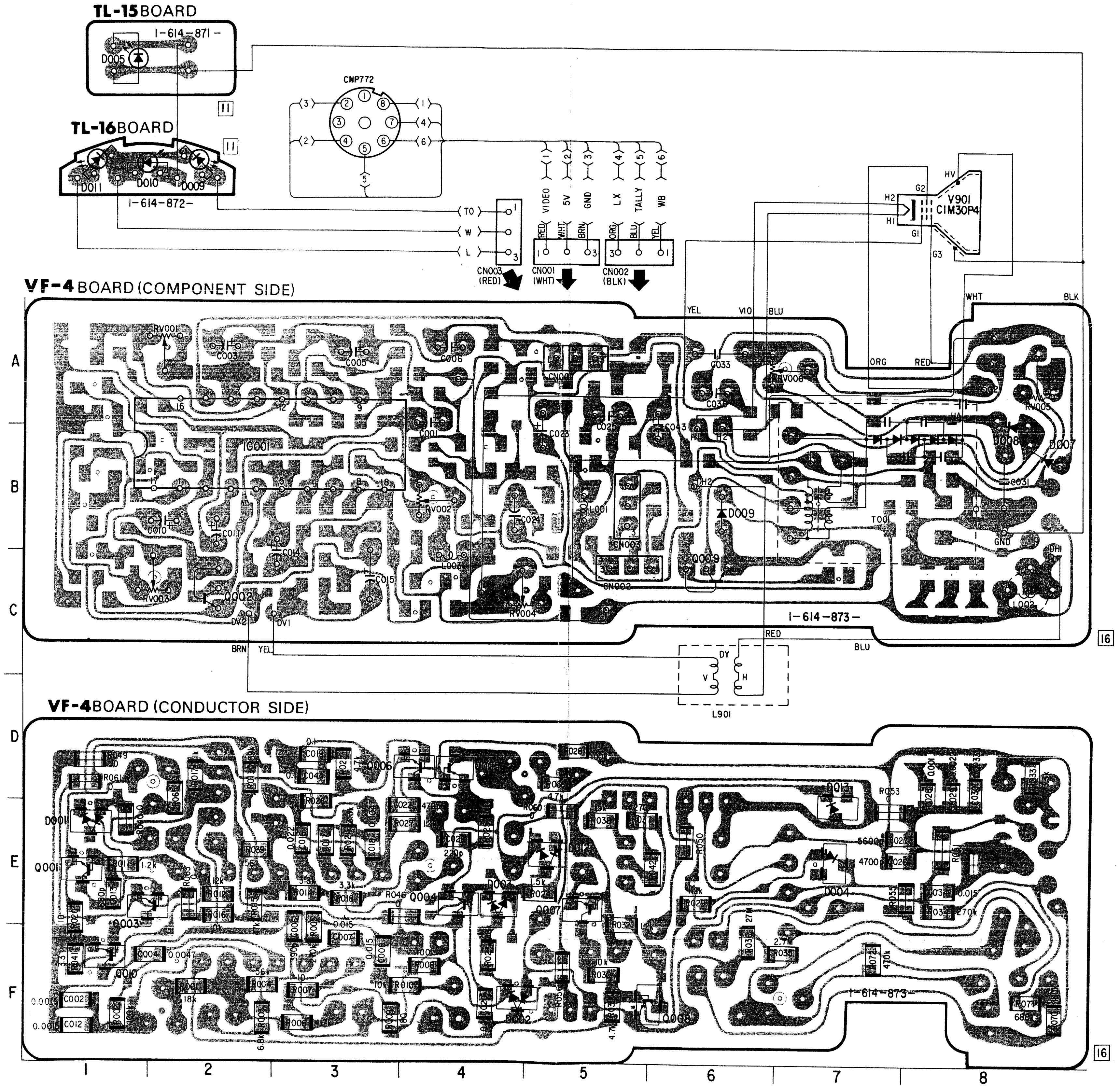

A
B
C
D
CN003
CN002
R015
R014
R017
R026
RV001
IC002
IC003
IC101
C105
C106
L103
L101
R108
R107
R106
R105
1-631-781-
21

TC-11P BOARD (CONDUCTOR SIDE)

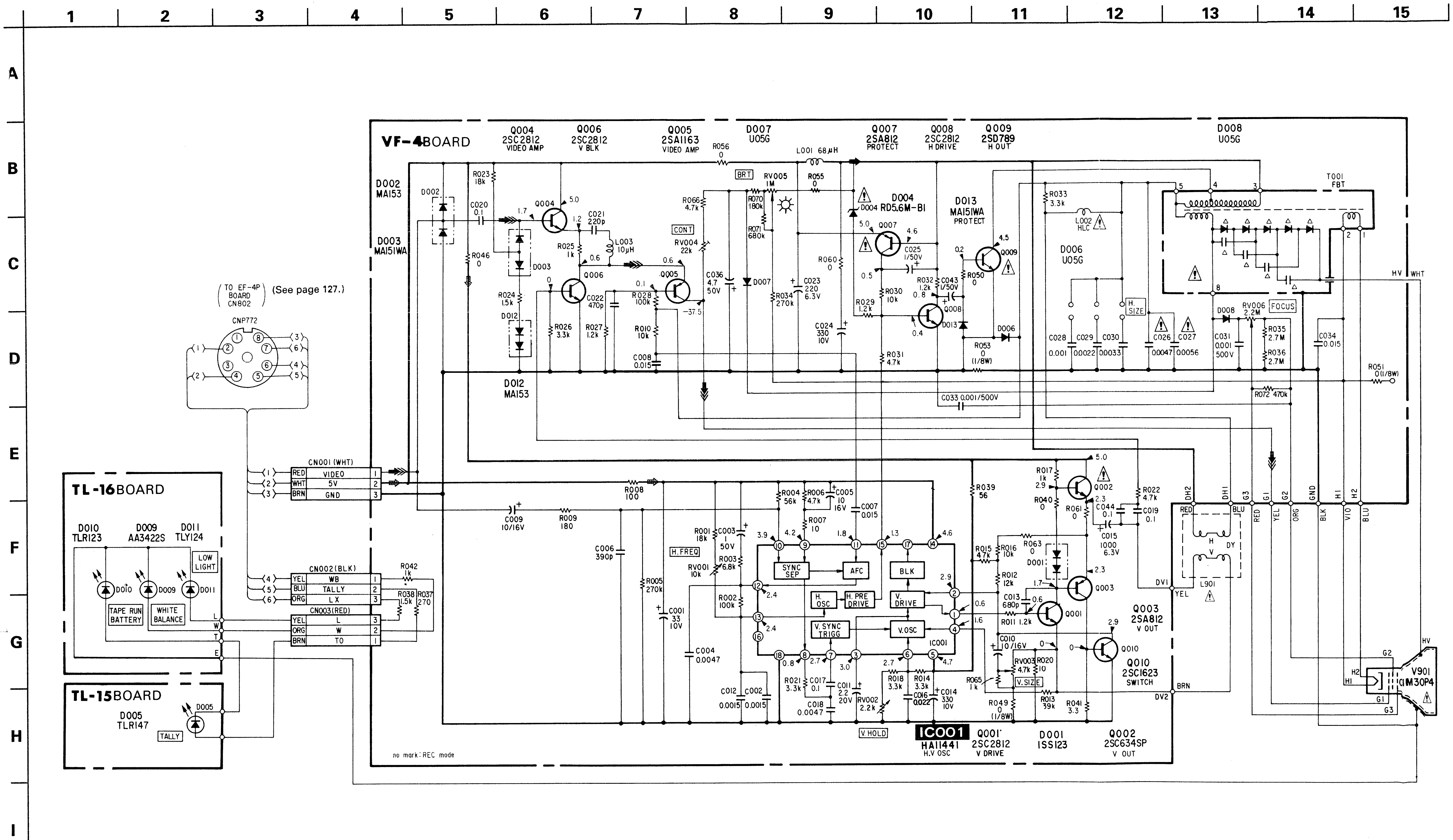

E
F
G
1
2
3
4
5
6
SWP
PB-MK
PB-CLK
WRITE
TP002
TP003
GND
FMDT
R023
L003
1-631-781-
21

VF-4 (VIEWFINDER) TL-15, 16 (LED) PRINTED WIRING BOARDS
–Ref. No. VF-4, TL-15 and TL-16 BOARDS: 10000 series–

Q, IC	D	ADJ
	005	
	011 009 010	
		RV001
		RV006,RV005
	008	
IC001	007	
	006	RV002
002 009		RV003 RV004
006,005		
	013	
	001	
	012	
	004	
001		
003 004 007	003	
010		
008	002	
Q, IC	D	ADJ



TL-15BOARD
1-614-871-
D005
TL-16BOARD
D011
D010
D009
1-614-872-
CNP772
TO
W
L
VIDEO
5V
GND
LX
TALLY
WB
RED
WHT
BRN
ORG
BLU
YEL
CN003 (RED)
CN001 (WHT)
CN002 (BLK)
V901
CIM30P4
HV
G2
H2
H1
G1
G3
VF-4 BOARD (COMPONENT SIDE)
VF-4BOARD (CONDUCTOR SIDE)
A
B
C
D
E
F
1
2
3
4
5
6
7
8
RV001
RV002
RV003
RV004
RV005
RV006
IC001
D006
D007
D008
D009
Q002
Q009
T001
L001
L002
L003
DY
V
H
L901
1-614-873-
16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15
A
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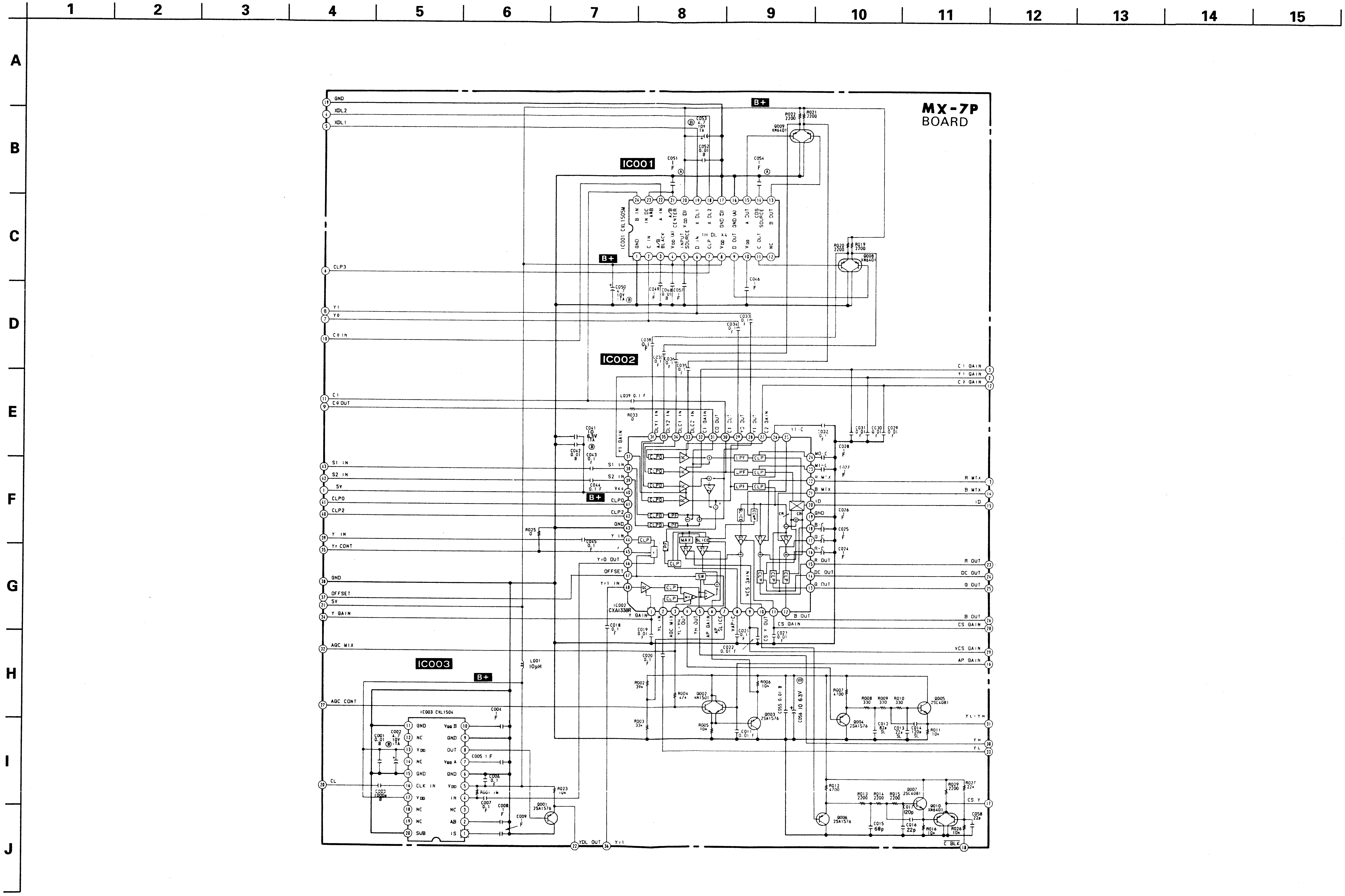
E
F
G
H
VF-4BOARD
TL-16BOARD
TL-15BOARD
Q004 2SC2812 VIDEO AMP
Q006 2SC2812 V BLK
Q005 2SA1163 VIDEO AMP
D007 U05G
Q007 2SA812 PROTECT
Q008 2SC2812 H DRIVE
Q009 2SD789 H OUT
D008 U05G
D002 MA153
D003 MA151WA
D012 MA153
D004 RD5.6M-B1
D013 MA151WA PROTECT
D006 U05G
T001 FBT
L001 68μH
L002 HLC
L003 10μH
BRT
CONT
H. SIZE
FOCUS
H.FREQ
V.HOLD
V.SIZE
(TO EF-4P BOARD CN802) (See page 127.)
CNP772
CN001 (WHT)
VIDEO
5V
GND
CN002 (BLK)
WB
TALLY
LX
CN003 (RED)
L
W
TO
D010 TLR123
D009 AA3422S
D011 TLY124
LOW LIGHT
TAPE RUN BATTERY
WHITE BALANCE
D005 TLR147
TALLY
SYNC SEP
AFC
BLK
H. OSC
H. PRE DRIVE
V. DRIVE
V. SYNC TRIGG
V. OSC
IC001
IC001 HA11441 H.V OSC
Q001 2SC2812 V DRIVE
D001 1SS123
Q002 2SC634SP V OUT
Q003 2SA812 V OUT
Q010 2SC1623 SWITCH
L901
DY
V901 1M30P4
HV
WHT
DH2
DH1
G3
G1
G2
GND
H1
H2
DV1
DV2
RED
BLU
YEL
ORG
BLK
VIO
BRN
no mark : REC mode

• **Signal path**

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡
PB	⇨	⇨⇨	⇨⇨⇨

MX-7P (CAMERA MATRIX) SCHEMATIC DIAGRAM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A
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C
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E
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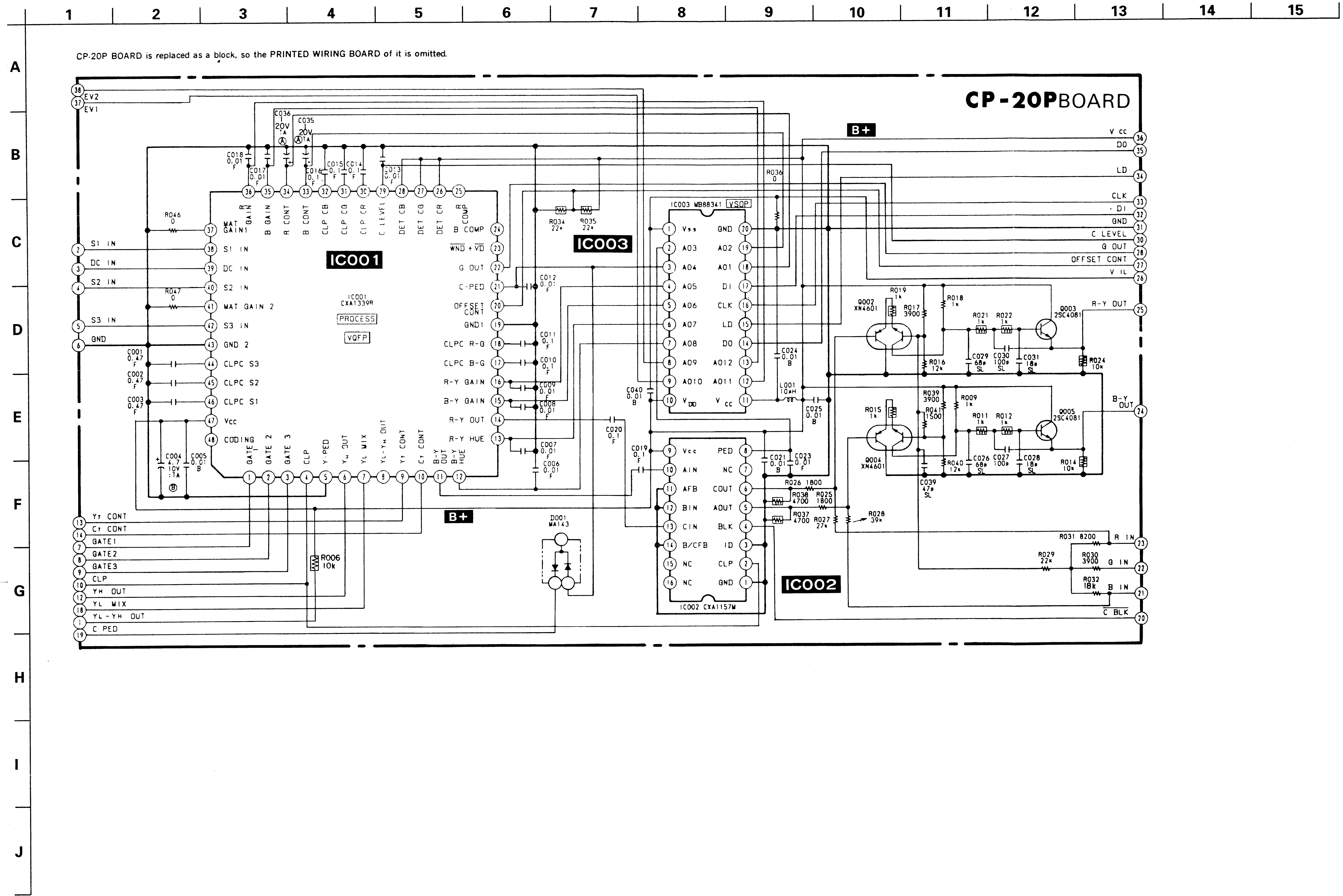
G
H
I
J
MX-7P
BOARD
IC001
IC002
IC003
B+
GND
XDL2
XDL1
CLP3
Y1
Y0
C0 IN
C1
C0 OUT
S1 IN
S2 IN
5V
CLP0
CLP2
Y IN
Yf CONT
GND
OFFSET
5V
Y GAIN
AGC MIX
AGC CONT
CL
YDL OUT
Yr1
C BLK
CS Y
YL
YH
YL-YH
AP GAIN
VCS GAIN
CS GAIN
B OUT
G OUT
DC OUT
R OUT
ID
B MIX
R MIX
C2 GAIN
Y1 GAIN
C1 GAIN
IC001 CXL1505M
IC002 CXA1338R
IC003 CXL1504
Q001 2SA1576
Q002 XN1501
Q003 2SA1576
Q004 2SA1576
Q005 2SC4081
Q006 2SA1576
Q007 2SC4081
Q008 XN6401
Q009 XN6401
Q010 XN6401
L001 10µH

CP-20P (CAMERA PROCESS) SCHEMATIC DIAGRAM



CP-20P BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.

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A
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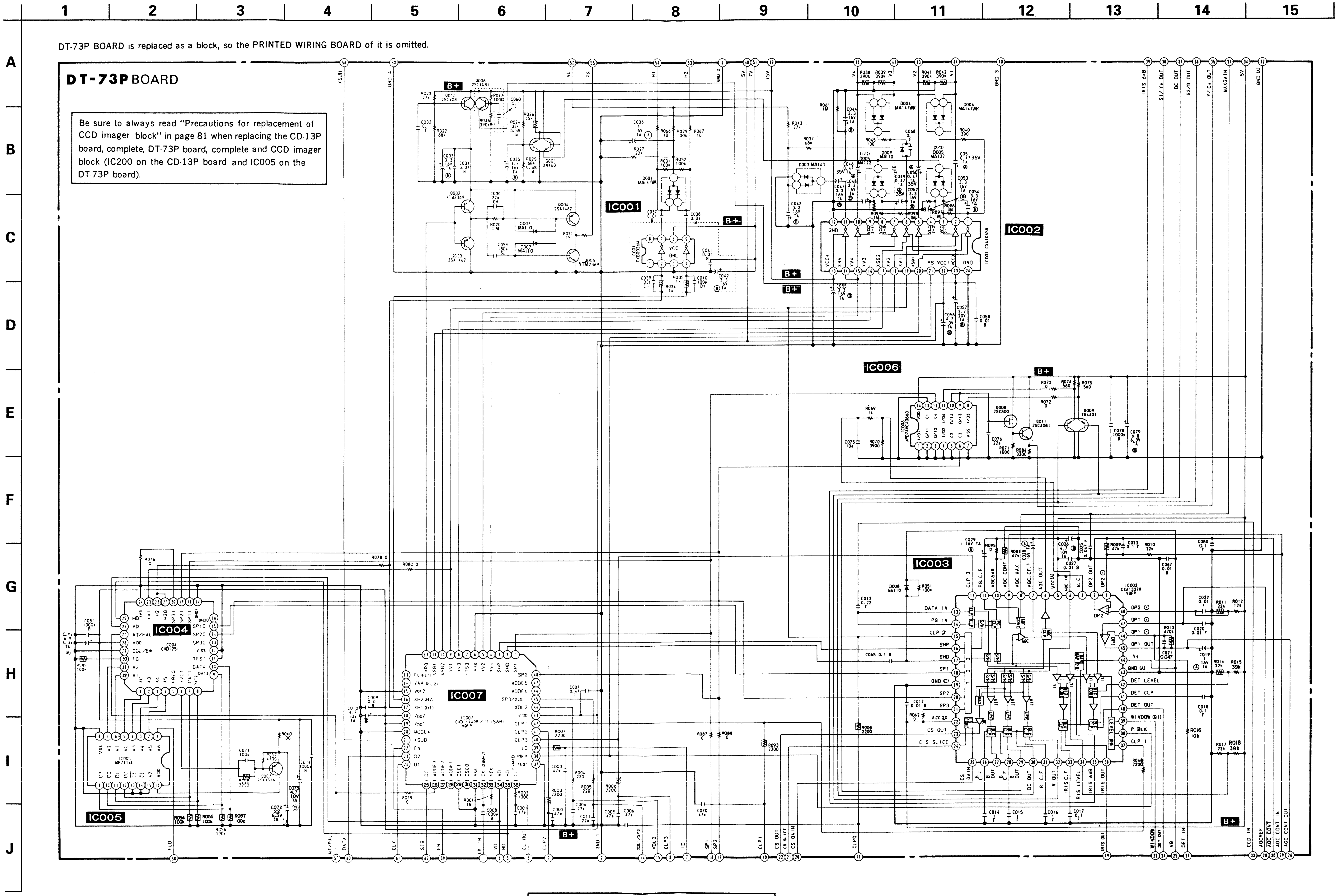
H
I
J
CP-20PBOARD
B+
B+
IC001
IC001
CXA1339R
PROCESS
VQFP
IC003
IC003 MB88341 VSOP
IC002
IC002 CXA1157M
EV2
EV1
S1 IN
DC IN
S2 IN
S3 IN
GND
Y7 CONT
C7 CONT
GATE1
GATE2
GATE3
CLP
YH OUT
YL MIX
YL-YH OUT
C PED
MAT GAIN1
S1 IN
DC IN
S2 IN
MAT GAIN 2
S3 IN
GND 2
CLPC S3
CLPC S2
CLPC S1
Vcc
CODING
R GAIN
B GAIN
R CONT
B CONT
CLP CB
CLP CG
CLP CR
C LEVEL
DET CB
DET CG
DET CR
R COMP
B COMP
WND + VD
G OUT
C-PED
OFFSET CONT
GND1
CLPC R-G
CLPC B-G
R-Y GAIN
B-Y GAIN
R-Y OUT
R-Y HUE
GATE 1
GATE 2
GATE 3
CLP
Y-PED
YH OUT
YL MIX
YL-YH OUT
Y7 CONT
C7 CONT
B-Y OUT
B-Y HUE
Vss
GND
A03
A02
A04
A01
A05
DI
A06
CLK
A07
LD
A08
DO
A09
A012
A010
A011
VDD
Vcc
Vcc
PED
AIN
NC
AFB
COUT
BIN
AOUT
CIN
BLK
B/CFB
ID
NC
CLP
NC
GND
V cc
DO
LD
CLK
DI
GND
C LEVEL
G OUT
OFFSET CONT
V IL
R-Y OUT
B-Y OUT
R IN
G IN
B IN
C BLK
C036 1 20V TA
C035 1 20V TA
C018 0.01 F
C017 0.01 F
C016 0.1 F
C015 0.1 F
C014 0.1 F
C013 0.01 F
R046 0
R047 0
C001 0.47 F
C002 0.47 F
C003 0.47 F
C004 4.7 10V TA
C005 0.01 B
R034 22k
R035 22k
C012 0.01 F
C011 0.1 F
C010 0.1 F
C009 0.01 F
C008 0.01 F
C007 0.01 F
C006 0.01 F
C020 0.1 F
C019 0.1 F
C040 0.01 B
R036 0
C024 0.01 B
L001 10μH
C025 0.01 B
C021 0.01 B
C023 0.01 F
R006 10k
D001 MA143
Q002 XN4601
Q003 2SC4081
Q004 XN4601
Q005 2SC4081
R019 1k
R017 3900
R018 1k
R021 1k
R022 1k
R016 12k
C029 68p SL
C030 100p SL
C031 18p SL
R024 10k
R039 3900
R009 1k
R041 1500
R011 1k
R012 1k
R015 1k
R040 12k
C026 68p SL
C027 100p
C028 18p SL
R014 10k
C039 47p SL
R026 1800
R038 4700
R025 1800
R037 4700
R027 27k
R028 39k
R031 8200
R029 22k
R030 3900
R032 18k

DT-73P (TIMING GENERATOR, CCD DRIVE) SCHEMATIC DIAGRAM

DT-73P BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.

Be sure to always read "Precautions for replacement of CCD imager block" in page 81 when replacing the CD-13P board, complete, DT-73P board, complete and CCD imager block (IC200 on the CD-13P board and IC005 on the DT-73P board).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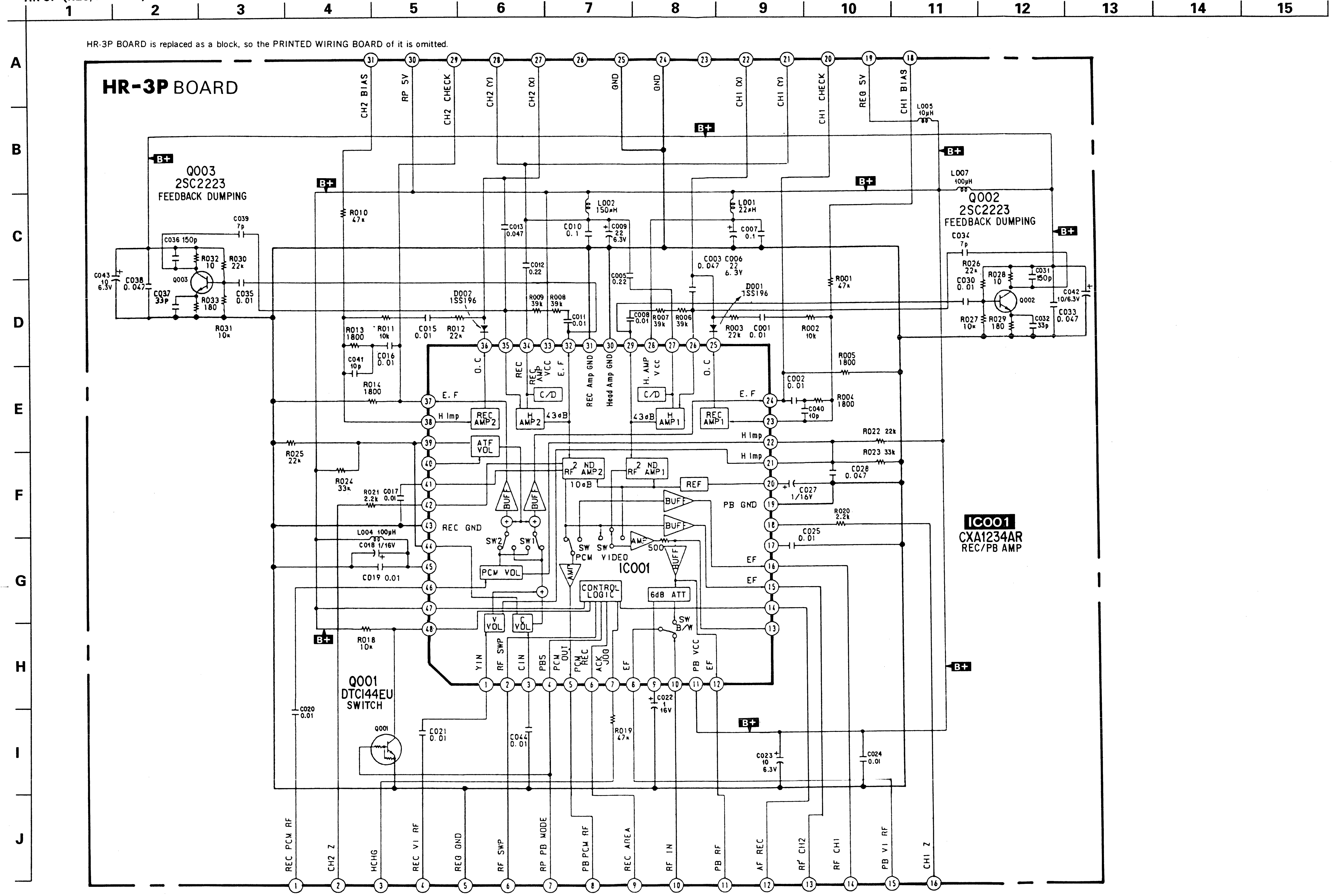
I
J
DT-73P BOARD
IC001
IC002
IC003
IC004
IC005
IC006
IC007
B+
XSUB
GND 4
VL
PG
H1
H2
GND 2
5V
7V
15V
V4
V3
V2
V1
GND 3
IRIS 6dB
S1/Y+ OUT
DC OUT
S2/Q OUT
Y/C+ OUT
MAXGAIN
5V
GND (A)
FLD
NT/PAL
DATA
CLK
STB
EN
LK IN
VD
HD
CL OUT
CLP2
GND 1
XDL2/SP3
XDL2
CLP3
ID
SP1
SP2
CLP1
CS OUT
CS SLICE
CS GAIN
CLPO
IRIS OUT
WINDOW
DET OUT
VG
DET IN
CCD IN
AGCREF
AGC CONT
AGC CONT IN
AGC CONT OUT
DATA IN
PG IN
CLP 2
SHP
SHD
SP1
GND (D)
SP2
SP3
VCC(D)
CS OUT
C.S SLICE
OP2 ⊕
OP1 ⊕
OP1 ⊖
OP1 OUT
Vx
GND (A)
DET LEVEL
DET CLP
DET OUT
WINDOW (G1)
P. BLK
CLP 1

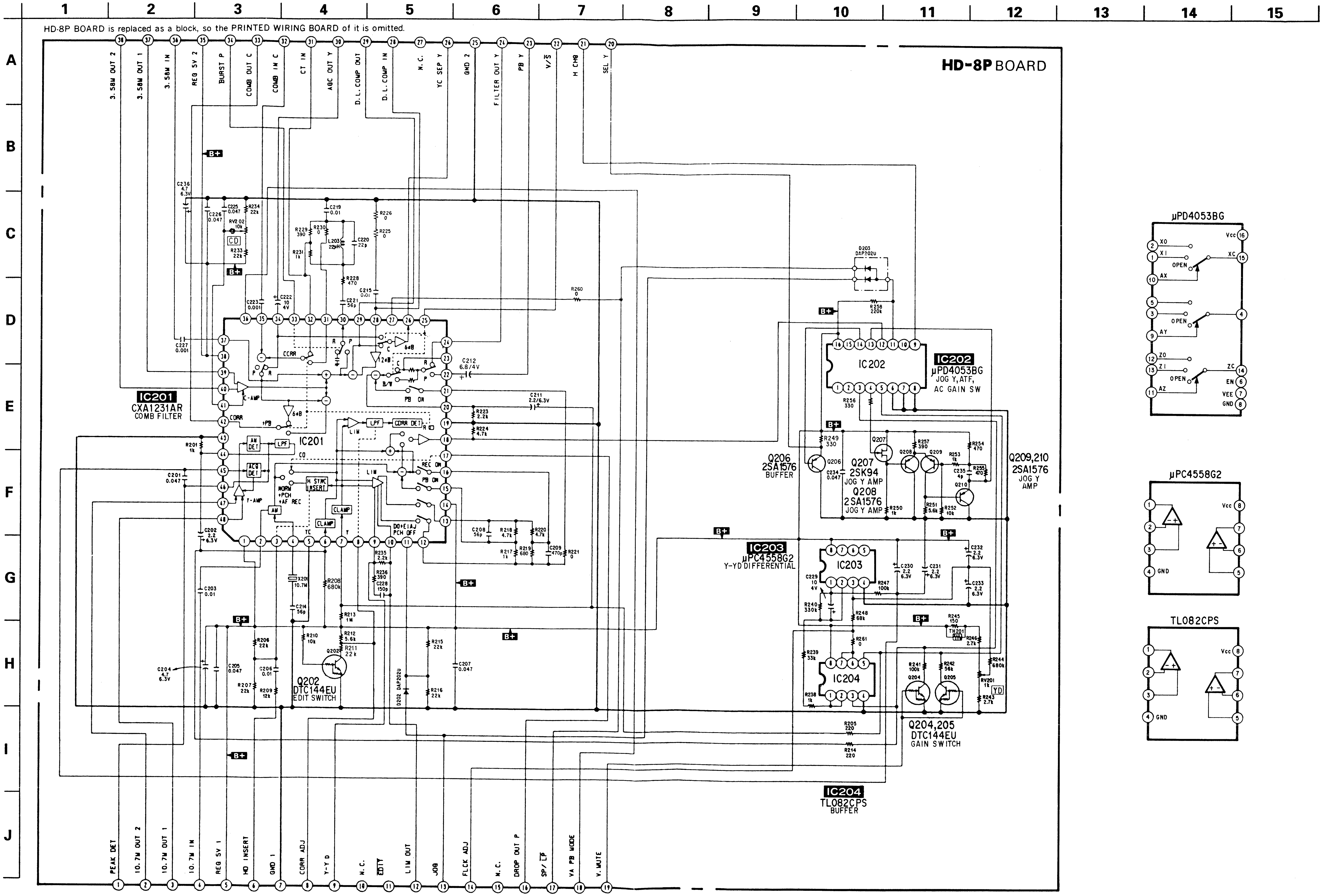
HR-3P (REC/PB AMP) SCHEMATIC DIAGRAM

HR-3P BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
HR-3P BOARD
CH2 BIAS
RP 5V
CH2 CHECK
CH2 (Y)
CH2 (X)
GND
GND
CH1 (X)
CH1 (Y)
CH1 CHECK
REG 5V
CH1 BIAS
L005 10μH
B+
Q003
2SC2223
FEEDBACK DUMPING
Q002
2SC2223
FEEDBACK DUMPING
L007 100μH
L002 150μH
L001 22μH
R010 47k
R001 47k
C039 7p
C036 150p
R032 10
R030 22k
C043 10 6.3V
C038 0.047
C037 33P
R033 180
C035 0.01
R031 10k
C013 0.047
C012 0.22
C010 0.1
C009 22 6.3V
C007 0.1
C003 0.047
C006 22 6.3V
C005 0.22
D002 1SS196
D001 1SS196
R009 39k
R008 39k
C011 0.01
C008 0.01
R007 39k
R006 39k
R003 22k
C001 0.01
R002 10k
R013 1800
R011 10k
C015 0.01
R012 22k
C041 10p
C016 0.01
R014 1800
C034 7p
R026 22k
C030 0.01
R028 10
C031 150p
C042 10/6.3V
R027 10k
R029 180
C032 33p
C033 0.047
R005 1800
C002 0.01
R004 1800
C040 10p
R022 22k
R023 33k
C028 0.047
C027 1/16V
R020 2.2k
C025 0.01
R025 22k
R024 33k
R021 2.2k
C017 0.01
L004 100μH
C018 1/16V
C019 0.01
R018 10k
Q001
DTC144EU
SWITCH
C020 0.01
C021 0.01
C044 0.01
R019 47k
C022 1 16V
C023 10 6.3V
C024 0.01
O.C
REC
REC AMP VCC
E.F
REC Amp GND
Head Amp GND
H. AMP VCC
O.C
E.F
H Imp
REC AMP2
C/D
H AMP2
43dB
43dB
H AMP1
C/D
REC AMP1
H Imp
H Imp
ATF VOL
2 ND RF AMP2
2 ND RF AMP1
10dB
REF
PB GND
BUF
BUF
BUF
BUF
REC GND
SW2
SW1
SW
SW
PCM
VIDEO
AMP
500
BUF
PCM VOL
EF
EF
IC001
CONTROL LOGIC
6dB ATT
SW B/W
V VOL
C VOL
YIN
RF SWP
CIN
PBS
PCM OUT
PCM REC
ACK JOG
EF
PB VCC
EF
IC001
CXA1234AR
REC/PB AMP
REC PCM RF
CH2 Z
HCHG
REC V1 RF
REG GND
RF SWP
RP PB MODE
PB PCM RF
REC AREA
RF IN
PB RF
AF REC
RF CH2
RF CH1
PB V1 RF
CH1 Z

HD-8P (COMB FILTER) SCHEMATIC DIAGRAM

HD-8P BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.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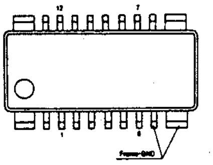
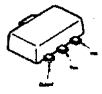
15
A
B
C
D
E
F
G
H
I
J
HD-8P BOARD
3.58M OUT 2
3.58M OUT 1
3.58M IN
REG 5V 2
BURST P
COMB OUT C
COMB IN C
CT IN
AGC OUT Y
D.L.COMP OUT
D.L.COMP IN
N.C.
YC SEP Y
GND 2
FILTER OUT Y
PB Y
V/S̄
H CHG
SEL Y
PEAK DET
10.7M OUT 2
10.7M OUT 1
10.7M IN
REG 5V 1
HD INSERT
GND 1
CORR ADJ
Y-Y D
N.C.
EDIT
LIM OUT
JOG
FLCK ADJ
N.C.
DROP OUT P
SP/LP
VA PB MODE
V.MUTE
IC201
CXA1231AR
COMB FILTER
IC202
μPD4053BG
JOG Y,ATF,
AC GAIN SW
IC203
μPC4558G2
Y-YD DIFFERENTIAL
IC204
TL082CPS
BUFFER
Q202
DTC144EU
EDIT SWITCH
Q206
2SA1576
BUFFER
Q207
2SK94
JOG Y AMP
Q208
2SA1576
JOG Y AMP
Q209,210
2SA1576
JOG Y
AMP
Q204,205
DTC144EU
GAIN SWITCH
D203
DAP202U
D202 DAP202U
B+
CD
YD
C-AMP
Y-AMP
CORR
AM DET
ACQ DET
LPF
LIM
CORR DET
H SYNC INSERT
CLAMP
AM
NORM
+PCH
+AF REC
REC ON
PB ON
B/W
DO+EIAJ PCH OFF
6dB
12dB
μPD4053BG
X0
X1
XC
OPEN
AX
AY
Z0
Z1
ZC
AZ
Vcc
EN
VEE
GND
μPC4558G2
TL082CPS

4-3. SEMICONDUCTORS

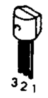
LB1631M



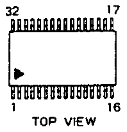
S8054ALB-LM-S
S8054ALR-S



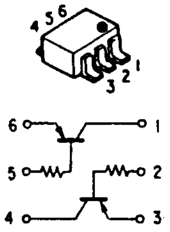
S81250HG-RD-S



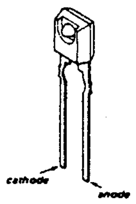
SBX1505


32
17
1
16
TOP VIEW

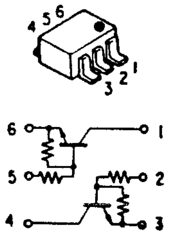
1MT1US


4 5 6
3 2 1
6
1
5
2
4
3

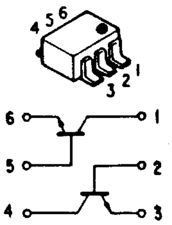
EE-TP109


cathode
anode

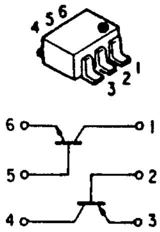
IMD2


4 5 6
3 2 1
6
1
5
2
4
3

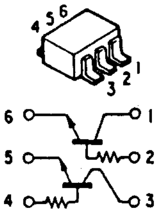
IMX1
XM4501


4 5 6
3 2 1
6
1
5
2
4
3

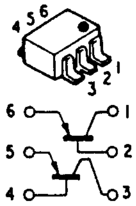
XN4601


4 5 6
3 2 1
6
1
5
2
4
3

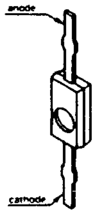
XN6215


4 5 6
3 2 1
6
1
5
2
4
3

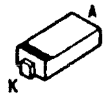
XN6401


4 5 6
3 2 1
6
1
5
2
4
3

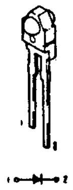
1T32-2


anode
cathode

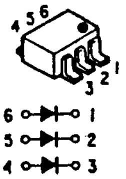
1T33C-01
MA110
MA111



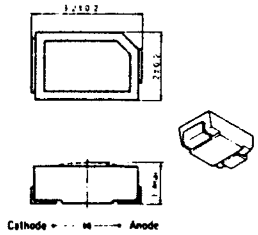
GL452S



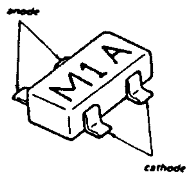
IMN10


4 5 6
3 2 1
6
1
5
2
4
3

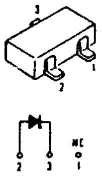
LN1251


Cathode
Anode

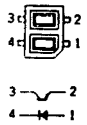
MA159


anode
M1A
cathode

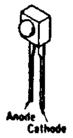
SB01-05CP



TLP907

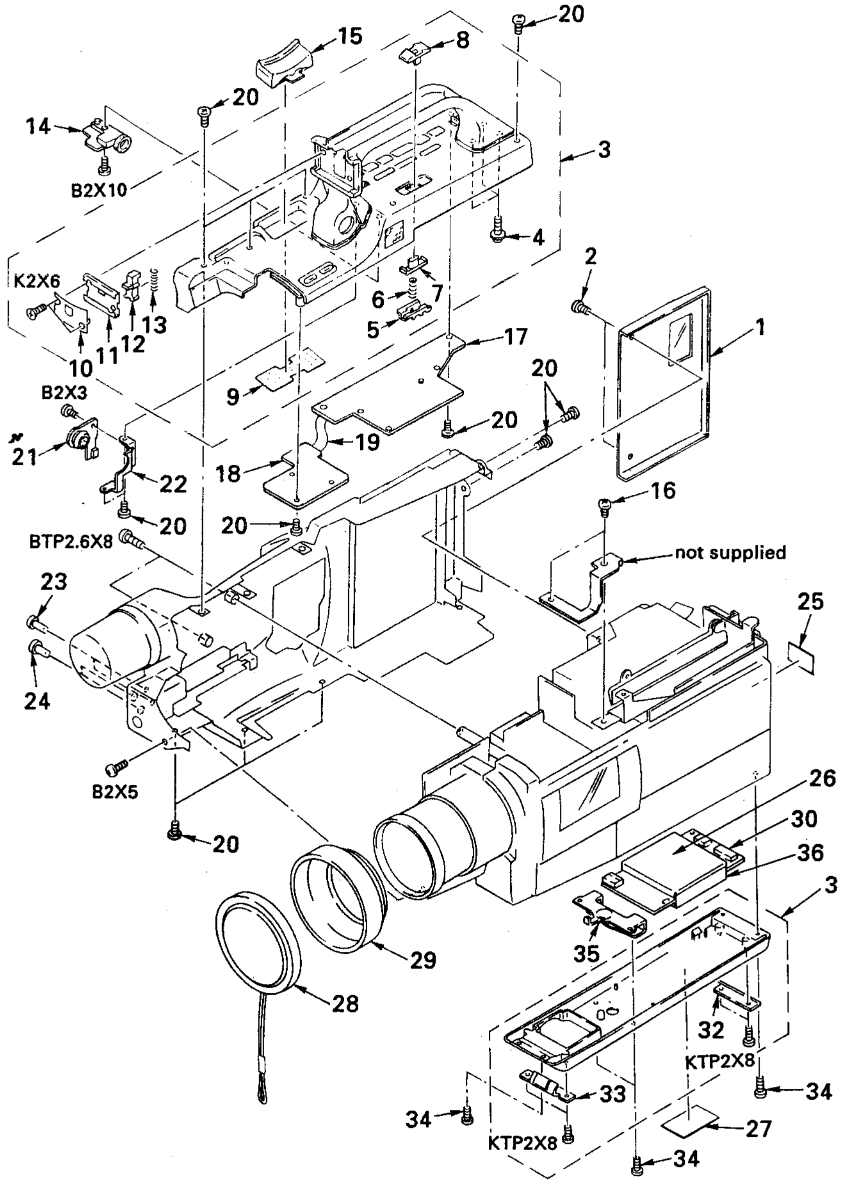


TLR223


Anode
Cathode

SECTION 5
EXPLODED VIEWS

5-1. CABINET (UPPER) ASSEMBLY



NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

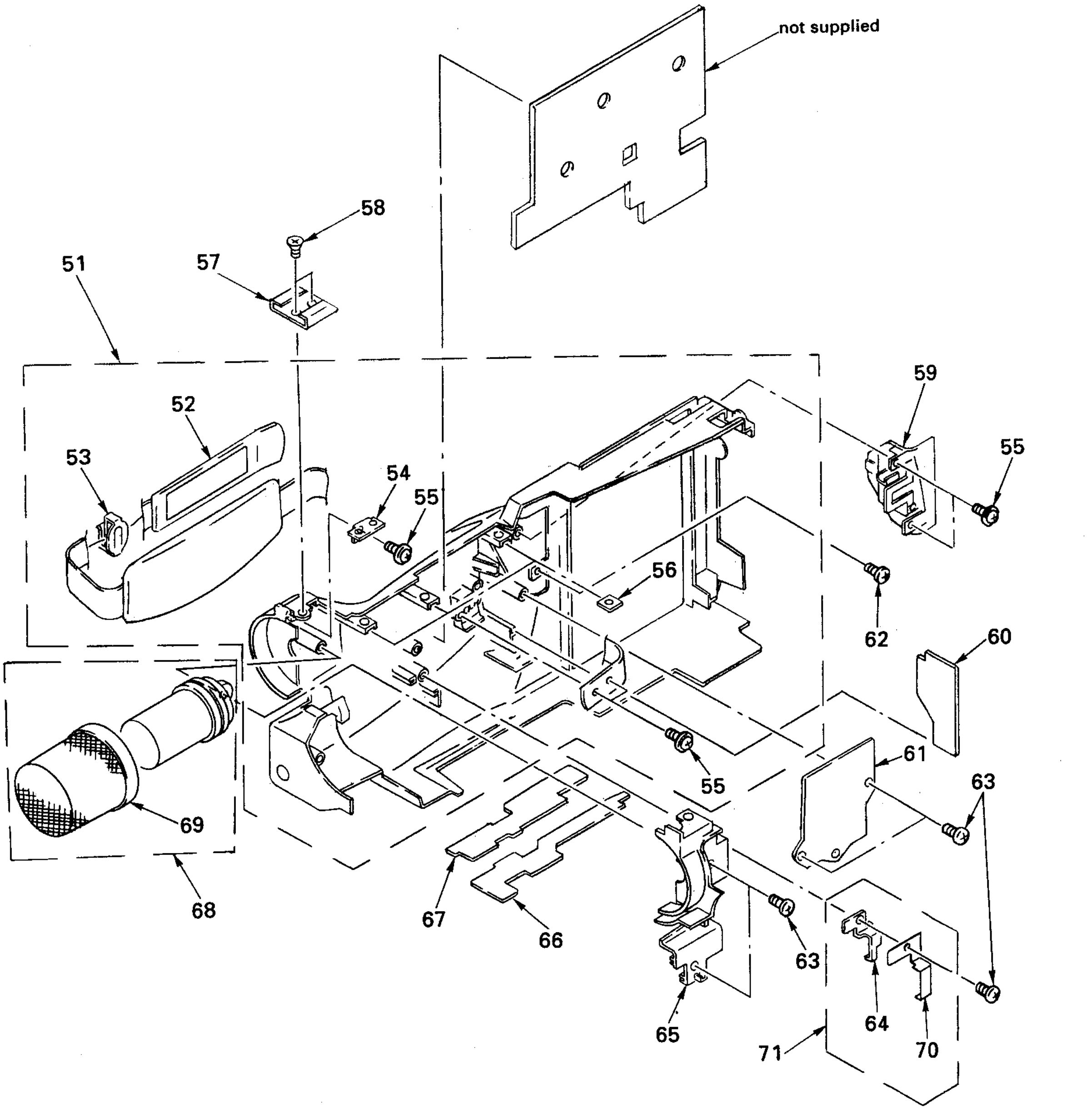
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants idendifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description	Remark
1	X-3716-415-1	LID ASSY, CASSETTE	
2	3-733-912-01	SCREW (M2X2.5), SPECIAL HEAD	
3	X-3716-414-1	CABINET (UPPER) SUB ASSY	4-13
4	3-669-480-21	+ PTPWH 2	
5	3-718-227-01	PLATE, BLIND, POWER	
6	3-303-973-00	SPRING, COMPRESSION	
7	3-718-257-01	PUSH, BUTTON, POWER	
8	3-718-226-01	BUTTON, POWER	
9	3-734-427-01	PLATE, BLIND, Z	
10	3-713-781-01	LINIG, SPRING	
11	3-713-550-01	LINING, EVF	
12	3-713-742-01	BUTTON, LOCK	
13	3-480-102-00	SPRING, COMPRESSION	
14	1-542-130-11	MICROPHONE, ELECTRET CONDENSER	
15	*1-571-791-41	SWITCH, PUSH (T/W)	
16	3-734-478-01	SCREW (M2X4), TAPPING	
17	*1-631-779-21	FK-11P BOARD	
18	*1-631-782-21	FC-26P BOARD	
19	1-574-972-11	CABLE, FLAT (1.0MM PITCH) 11P	

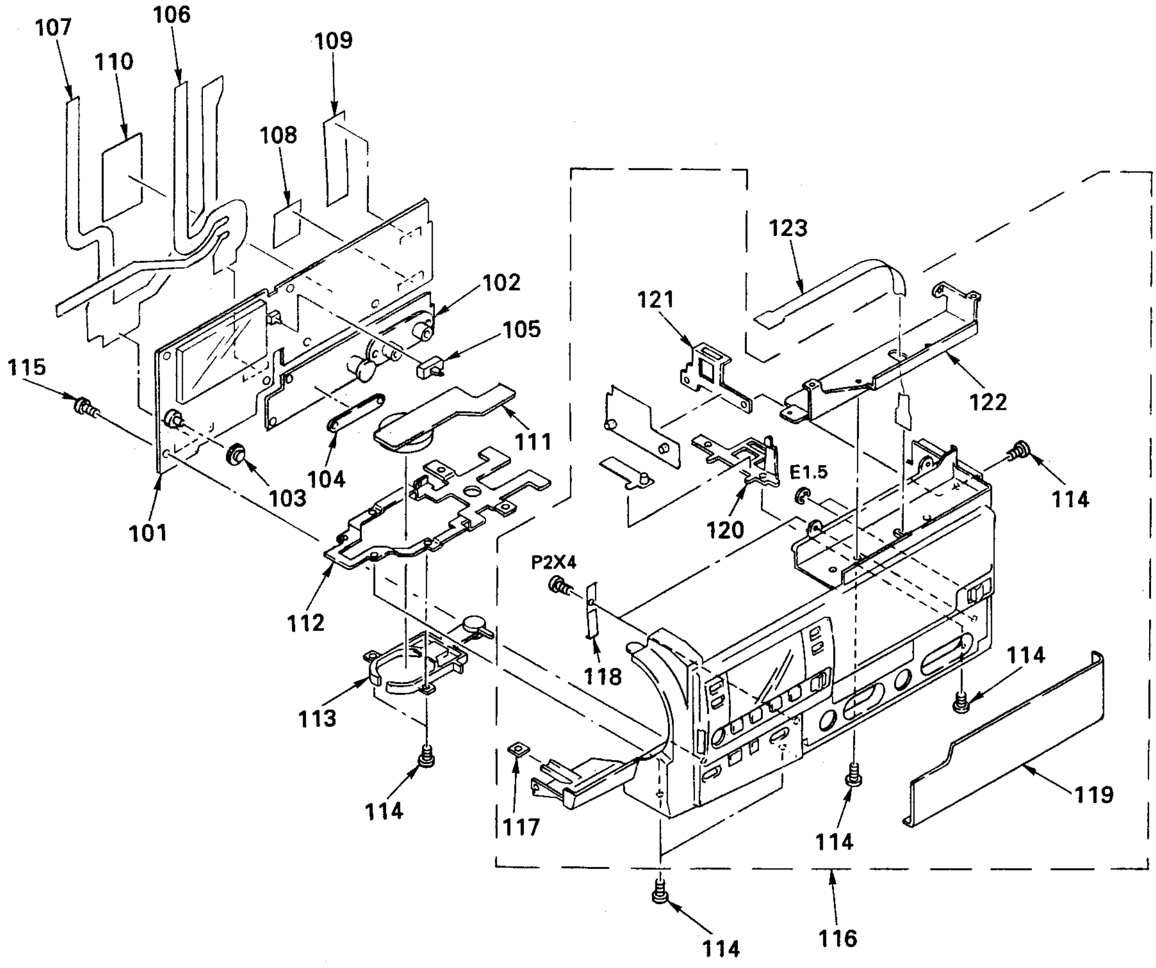
Ref.No	Part No.	Description	Remark
20	3-719-381-11	SCREW (M2X5)	
21	*1-631-780-21	EF-4P BOARD	
22	*3-737-628-01	SHEET METAL, CONNECTOR FITTING	
23	3-728-266-01	COVER, 2.5 JACK	
24	3-728-267-01	COVER, 3.5 JACK	
25	*3-719-683-01	LABEL, BATTERY FITTING	
26	*3-737-618-01	CASE (UPPER), SHIELD, TC	
27	*3-737-676-01	LABEL, MODEL NUMBER (AEP) (AEP MODEL)	
27	*3-737-678-01	LABEL, MODEL NUMBER (AEP) (UK MODEL)	
28	X-3732-710-1	CAP ASSY, HOOD	
29	3-696-004-01	HOOD	
30	*A-7062-113-A	COMPLETE PCB, TC-11P	
31	X-3716-411-1	CABINET (LOWER) ASSY	32,33
32	3-737-616-01	SHEET METAL (R), LOCK	
33	3-737-615-01	SHEET METAL (F), LOCK	
34	3-719-381-21	SCREW (M2X6)	
35	3-737-624-01	SHEET METAL, TRIPOD	
36	*3-737-612-01	CASE (LOWER), SHIELD, TC	

5-2. CABINET (G) and GRIP ASSEMBLIES



Ref.No	Part No.	Description	Remark
51	X-3716-412-1	CABINET (G) SUB ASSY	52-56
52	3-737-654-01	BELT, GRIP	
53	3-714-007-01	CLAMP, HOOD	
54	3-732-710-01	NUT, PLATE, SHOE	
55	3-669-480-21	+ PTPWH 2	
56	3-718-233-01	NUT, PLATE	
57	3-724-511-01	SHOE, ACCESSORY	
58	3-719-831-21	SCREW (M2X4)	
59	X-3716-408-1	BASE ASSY, SP	
60	*1-629-172-21	SW-94P BOARD	
61	*A-7062-111-A	COMPLETE PCB, MC-40P	
62	3-719-381-11	SCREW (M2X5)	
63	3-713-790-01	SCREW (M2X6), TAPPING, P3	
64	*3-732-717-01	RETAINER, MJ	
65	3-732-750-21	CABINET, MICROPHONE	
66	*1-629-174-21	JC-3P BOARD	
67	*A-7071-107-A	MOUNTED PCB, MC-38P	
68	1-542-121-11	MICROPHONE, ELECTRET CONDENSER	69
69	X-2536-716-1	WIND SCREEN ASSY	
70	*3-734-486-02	PLATE, PROTECTION, MJ	
71	*X-3732-749-1	RETAINER ASSY, MJ	64,70

5-3. CABINET (R) and EVF ASSEMBLIES


107
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122
111
E1.5
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103
120
101
P2X4
112
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119
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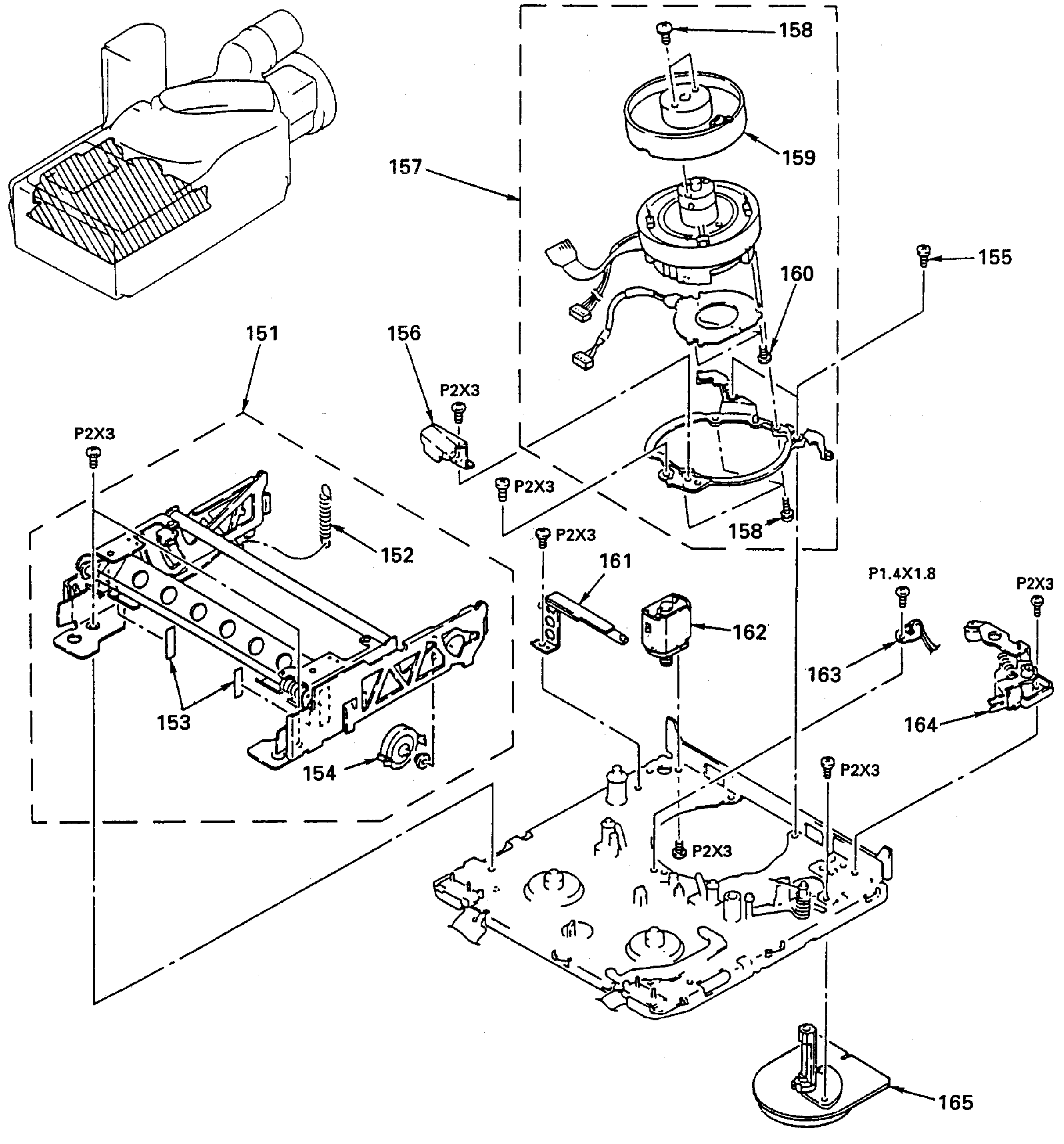
114
116

Ref.No	Part No.	Description	Remark
101	*A-7062-110-A	COMPLETE PCB, FD-14P	
102	*1-629-170-21	PJ-21P BOARD	
103	3-732-706-01	KNOB, IRIS	
104	*3-734-493-01	SPACER (B)	
105	3-737-660-01	BUTTON (TC), SLIDE	
106	1-629-196-11	PC BOARD, FP-164	
107	1-629-192-11	PC BOARD, FP-158	
108	1-629-776-11	PC BOARD, FP-202	
109	1-574-810-11	CABLE, FLAT (1.0MM PITCH) 20P	
110	*3-734-485-01	INSULATOR, FD-10	
111	*1-629-175-21	LI-8P BOARD	
112	X-3732-741-1	SHEET METAL ASSY, TRIPOD	
113	3-732-747-01	HOLDER, BATTERY	
114	3-719-381-11	SCREW (M2X5)	
115	3-713-790-01	SCREW (M2X6), TAPPING, P3	
116	X-3716-413-1	CABINET (R) SUB ASSY	114,117-122
117	3-718-233-01	NUT, PLATE	
118	3-732-705-01	SPRING, LEAF	
119	3-732-745-05	LID, CONNECTOR	
120	3-732-757-01	SHEET METAL, STRAP	
121	3-732-784-01	SHEET METAL, CABINET (REAR)	
122	*3-737-633-01	BRACKET, CABINET	
123	1-629-191-21	PC BOARD, FP-156	

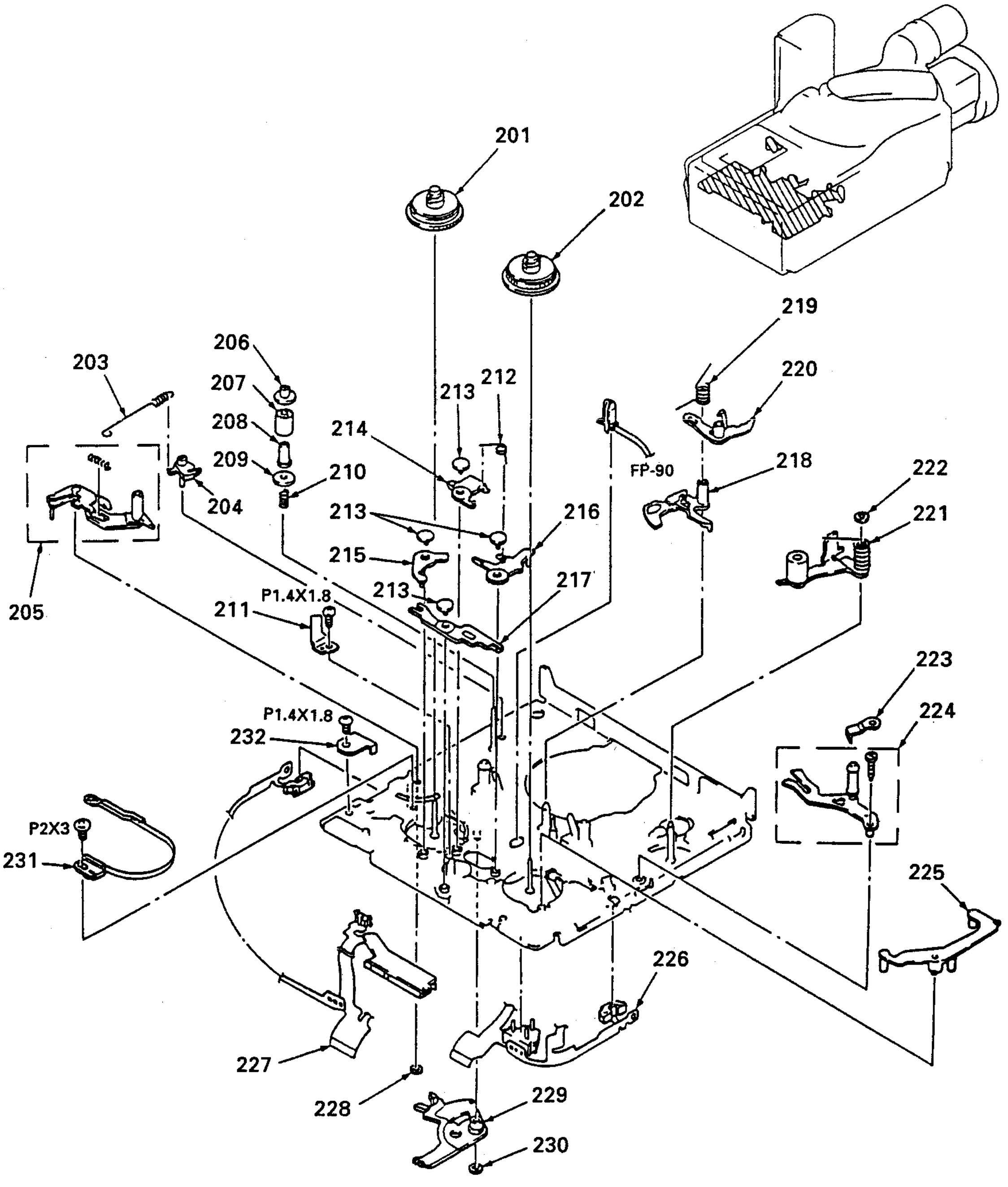
5-4. MECHANICAL ASSEMBLY (1)


158
159
157
160
155
151
156
P2X3
P2X3
P2X3
152
P2X3
158
161
P1.4X1.8
P2X3
162
163
153
164
154
P2X3
P2X3
165

Ref.No	Part No.	Description	Remark
151	X-3728-873-1	CASSETTE COMPARTMENT ASSY	152-154
152	3-728-825-03	SPRING, TENSION	
153	*3-728-829-01	TAPE	
154	3-728-867-02	DAMPER, OIL	
155	3-736-406-01	SCREW (3) (M2X10)	
156	3-728-868-01	GUARD, GUIDE	
157	A-7048-297-A	DRUM ASSY (DGU-50A-R)	

Ref.No	Part No.	Description	Remark
159	A-7049-267-A	DRUM ASSY, ROTARY (UPPER) (DGR-50-R)	
161	X-3728-864-1	GROUND ASSY, SHAFT	
162	A-7040-160-A	MOTOR ASSY, THREADING (M903)	
163	1-808-505-12	SENSOR (DEW)	
164	A-7040-161-B	ROLLER BLOCK ASSY, HC	
165	8-835-331-01	MOTOR, DC U-22A (CAPSTAN) (M902)	

5-5. MECHANICAL ASSEMBLY (2)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202
219
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207
213
212
220
208
214
FP-90
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222
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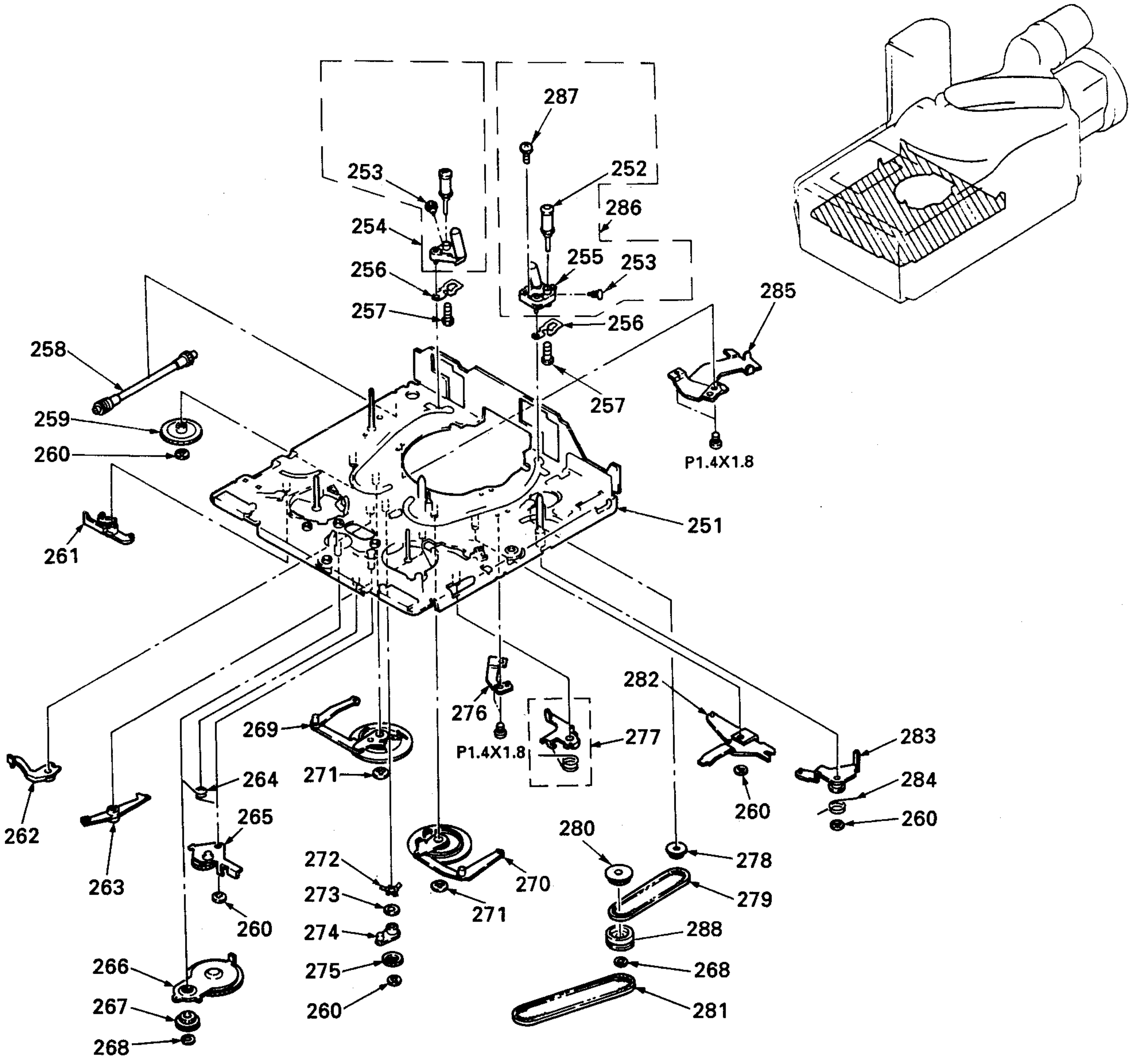
210
204
213
216
221
215
217
205
213
P1.4X1.8
211
223
P1.4X1.8
224
232
P2X3
231
225
226
227
228
229
230

Ref.No	Part No.	Description	Remark
201	X-3728-851-1	TABLE ASSY, REEL, S	
202	X-3728-855-1	TABLE ASSY, REEL, T	
203	3-736-414-01	SPRING, TENSION	
204	3-728-855-03	ARM, ADJUSTMENT	
205	X-3728-867-1	ARM ASSY (S),TENSION REGULATOR	
206	31-726-884-01	FLANGE, UPPER, TG2	
207	3-726-883-01	ROLLER, TG2	
208	3-726-885-01	SLEEVE, TG2	
209	3-726-882-02	FLANGE, LOWER, TG2	
210	3-726-886-01	SPRING, COMPRESSION	
211	3-726-848-01	RETAINER, TL	
212	3-726-866-01	SPRING (ST), TORSION	
213	3-726-858-01	PIN, SHAFT RETAINER	
214	3-728-849-01	BRAKE, S	
215	3-726-852-01	BRAKE, LB	
216	3-728-850-01	BRAKE, T	
217	3-726-853-01	LEVER, LB	
218	3-728-875-01	STOPPER, RK	
219	3-726-864-01	SPRING (RK), TORSION	
220	3-728-852-02	ARM, RK STOPPER	
221	A-7040-219-A	ARM BLOCK ASSY, PINCH	
222	3-669-465-00	WASHER (1.5), STOPPER	
223	3-728-808-01	SPRING, LEAF	
224	X-3728-869-1	ARM ASSY, TG7	
225	3-728-848-01	ARM, LB RELEASE	
226	1-628-061-12	PC BOARD, FP-90 FLEXIBLE	
227	1-628-060-12	PC BOARD, FP-89 FLEXIBLE	
228	3-321-393-11	WASHER, STOPPER	
229	X-3726-806-2	LEVER ASSY, SW	
230	3-726-829-01	WASHER, STOPPER	
231	X-3726-809-2	BAND ASSY, TENSION REGULATOR	
232	3-730-125-01	RETAINER, SW	

5-6. MECHANICAL ASSEMBLY (3)



287
253
252
286
254
255
253
256
285
257
256
258
257
259
260
P1.4X1.8
261
251
282
276
269
P1.4X1.8
277
283
264
271
284
260
260
262
265
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260
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288
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268
267
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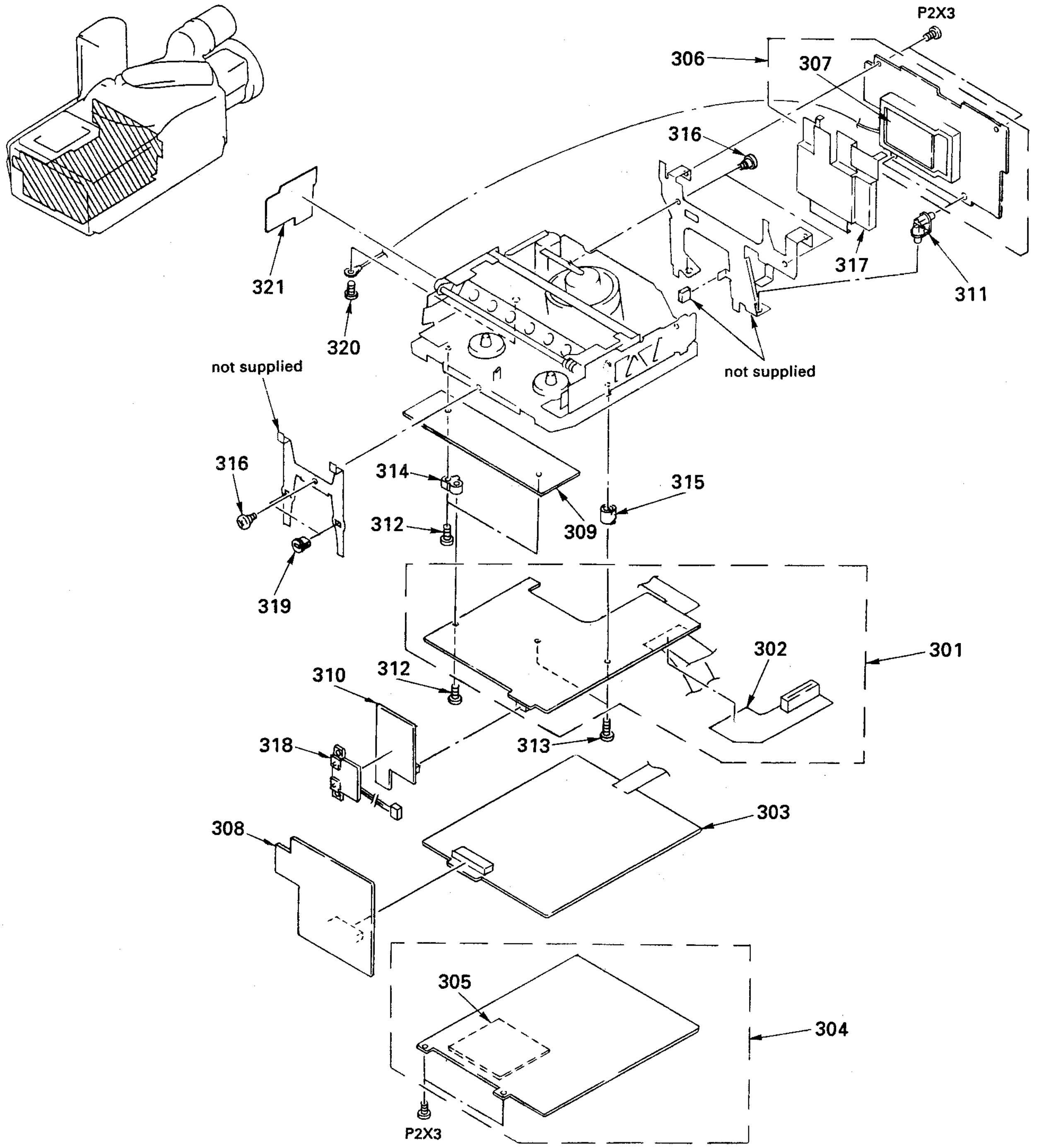
281
268

Ref.No	Part No.	Description	Remark
251	*X-3728-801-1	CHASSIS ASSY, MECHANICAL	
252	X-3728-808-1	ROLLER ASSY (U) (SUS), GUIDE	
253	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
254	A-7040-204-A	COASTER (LEFT) BLOCK ASSY	253
255	X-3728-852-1	COASTER (RIGHT) ASSY	
256	3-736-485-01	SPRING, LEAF, COSTER	
257	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
258	X-3728-868-1	WORM ASSY	
259	3-744-109-01	GEAR, WHEEL	
260	3-726-829-01	WASHER, STOPPER	
261	3-728-842-01	LEVER, EJECT	
262	3-728-851-01	BRAKE, UL	
263	3-726-854-01	ARM, BRAKE RELEASE	
264	3-726-865-01	SPRING (LB), TORSION	
265	A-7040-130-A	GEAR BLOCK ASSY, LB	
266	X-3728-866-1	GEAR ASSY, RK	
267	X-3728-858-1	GEAR ASSY, RC	
268	3-321-393-11	WASHER, STOPPER	
269	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	
270	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
271	3-669-465-00	WASHER (1.5), STOPPER	
272	3-726-867-01	SPRING, LEAF	
273	3-701-436-21	WASHER, POLYEHTHYLENE	
274	3-726-857-02	ARM, UL	
275	3-726-856-02	GEAR, UL	
276	*3-726-805-01	REINFORCEMENT (TT)	
277	X-3726-808-2	BRAKE ASSY, TS	
278	X-3726-805-1	GEAR ASSY, JOINT	
279	3-728-866-11	BELT (S), TIMING	
280	X-372-683-81	PULLEY (UPPER) ASSY, MIDWAY	
281	3-741-197-01	BELT (L), TIMING	
282	3-744-145-01	LEVER, THREADING	
283	X-3726-824-1	ARM ASSY, PINCH SUB	
284	3-726-895-01	SPRING	
285	X-3726-841-1	REINFORCEMENT (SS) ASSY	
286	A-7040-215-A	COASTER (RIGHT)BLOCK ASSY(N1S)	252,253,255,287
287	3-736-473-01	SCREW (M2X0.25) (THREE LOCK)	
288	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	

5-7. MAIN BOARD ASSEMBLY


P2X3
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307
316
317
311
321
320
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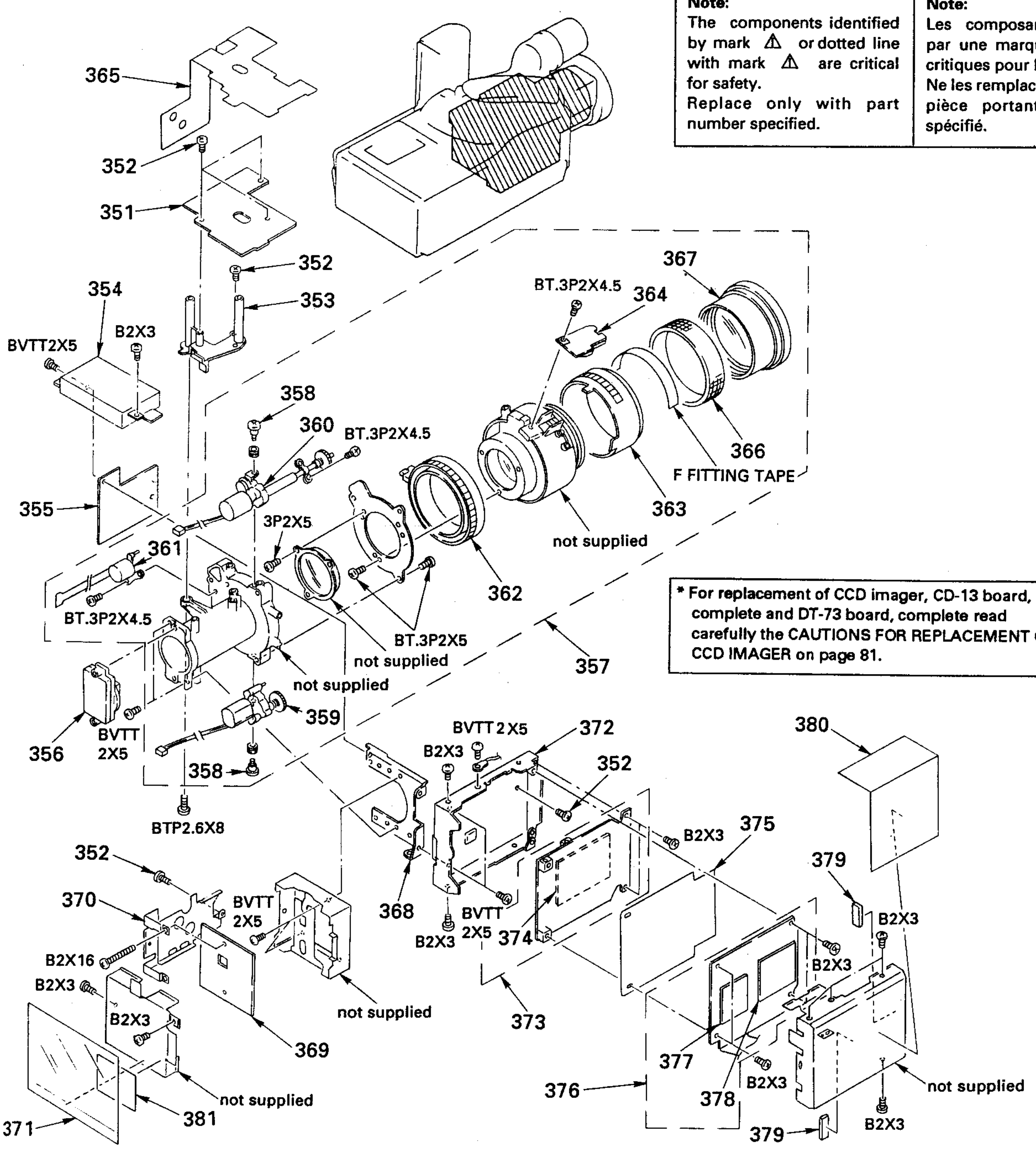
not supplied
316
314
315
312
309
319
310
312
302
301
318
313
303
308
305
304
P2X3

Ref.No	Part No.	Description	Remark
301	*A-7062-115-A	COMPLETE PCB, SS-96P	302
302	1-629-194-11	FP-161 BOARD	
303	*A-7061-753-A	COMPLETE PCB, VI-71	
304	*A-7061-754-A	COMPLETE PCB, VI-72	305
305	A-7068-154-A	COMPLETE PCB, HD-8P HIC	
306	*A-7061-755-A	COMPLETE PCB, MR-20	307
307	A-7068-155-A	COMPLETE PCB, HR-3P HIC	
308	*A-7062-116-A	COMPLETE PCB, AT-8P	
309	*A-7070-924-A	MOUNTED PCB, CC-18P	
310	*1-629-173-21	FU-66P BOARD	
311	*3-732-776-01	HINGE (C), PC BOARD	
312	3-713-790-01	SCREW (M2X5), TAPPING, P3	
313	3-713-790-31	SCREW (M2X8), TAPPING, P3	
314	3-732-766-01	SPACER (A), PC BOARD	
315	3-732-767-01	SPACER (B), PC BOARD	
316	3-732-791-11	SCREW (M2X3)	
317	*3-732-793-01	LID, RP	
318	1-537-241-21	TERMINAL BOARD (BATTERY)	
319	3-732-790-01	STOPPER, PC BOARD	
320	3-703-502-01	SCREW	
321	*3-734-475-01	PLATE, BLIND, M	

5-8. CAMERA BLOCK ASSEMBLY

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants idendifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.


365
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B2X3
BVTT2X5
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BT.3P2X4.5
355
3P2X5
361
BT.3P2X4.5
356
BVTT
2X5
358
BTP2.6X8
359
not supplied
not supplied
BT.3P2X5
362
BT.3P2X4.5
364
367
366
F FITTING TAPE
363
not supplied
357
380
BVTT2X5
372
B2X3
352
B2X3
375
379
B2X3
B2X3
368
BVTT
2X5
B2X3
374
373
377
378
B2X3
376
379
B2X3
not supplied
352
370
BVTT
2X5
B2X16
B2X3
B2X3
369
not supplied
381
not supplied
371

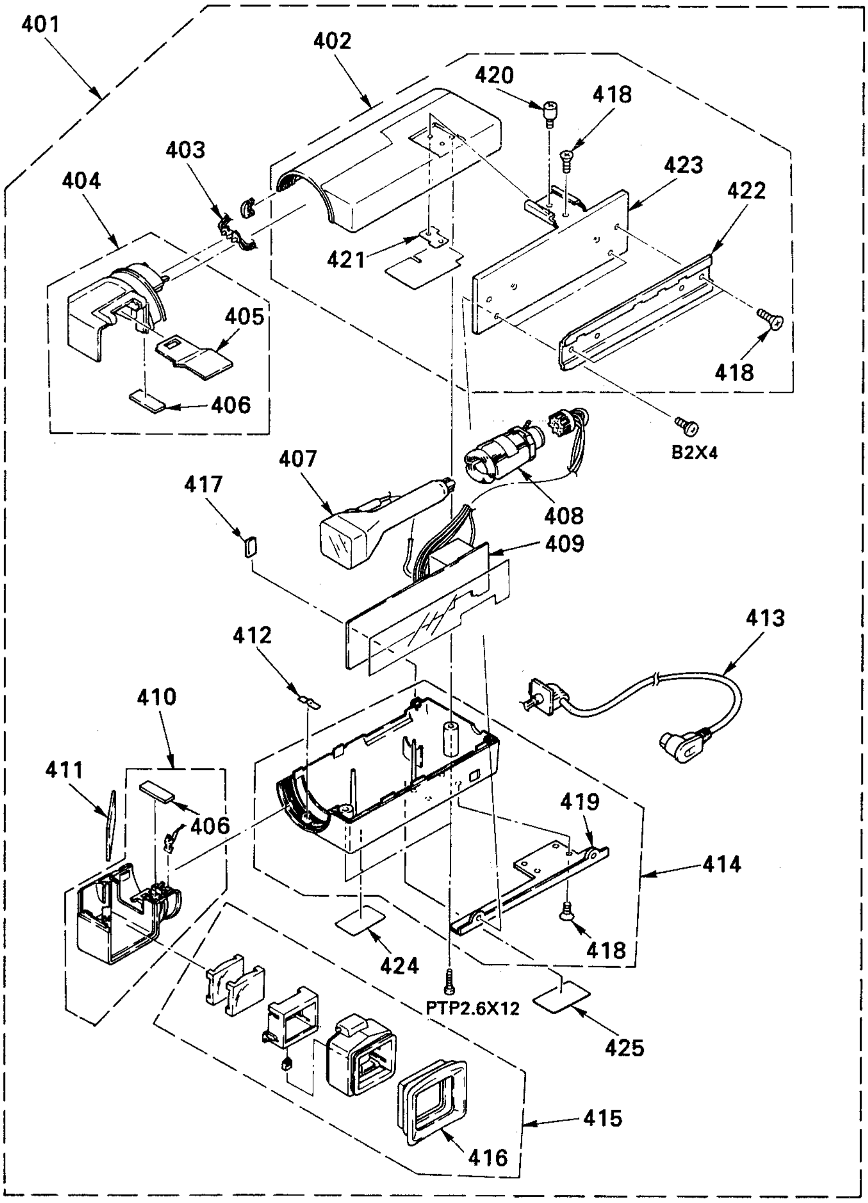
*** For replacement of CCD imager, CD-13 board, complete and DT-73 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 81.**

Ref.No	Part No.	Description	Remark
351	*A-7061-759-B	COMPLETE PCB, AF-47P	
352	3-727-903-01	SCREW (2X5), TAPPING, + B	
353	3-732-723-01	SUPPORT, LENS	
354	1-466-063-21	UNIT, DC-DC CONVERTER	
355	*A-7061-760-A	COMPLETE PCB, DM-23P	
356	8-750-011-12	IU024AN-10C (CCD IMEGER)	
357	1-547-334-13	LENS, ZOOM (VCL-1108YB)	358-364,366,367
358	3-707-501-01	SCREW, (Z) MOTOR FITTING	
359	3-707-580-01	MOTOR ASSY, PZ GEAR (ZOOM)	
360	3-707-576-01	MOTOR ASSY, AF GEAR (FOCUS)	
361	3-707-583-01	METER ASSY, EE (IRIS)	
362	3-707-582-01	RING ASSY, ZOOM	
363	3-707-578-01	SCALE RING, F	
364	3-707-763-01	SENSOR ASSY, F	
365	*3-734-482-01	PLATE, SHIELD, FC	
366	3-707-575-01	RUBBER, FOCUS	

Ref.No	Part No.	Description	Remark
367	3-707-577-01	RING UNIT, F	
368	*3-732-773-01	BRACKET, CCD	
369	*A-7070-926-A	MOUNTED PCB, CD-13P	
370	*3-734-421-01	HEAT SINK, CD	
371	*3-734-466-01	INSULATOR (B), CAMERA	
372	*X-3732-708-1	CASE ASSY, SHIELD, CAMERA	
373	*A-7061-757-A	COMPLETE PCB, VC-54P	374
374	A-7068-143-A	COMPLETE PCB, DT-73B HIC	
375	*3-740-904-01	PLATE (B), SHIELD, VC	
376	*A-7061-758-A	COMPLETE PCB, VC-55P	377,378
377	A-7068-145-A	COMPLETE PCB, CP-20 HIC	
378	A-7068-144-A	COMPLETE PCB, MX-7 HIC	
379	*3-734-418-01	PROTECTOR, HIC	
380	*3-734-441-01	INSULATOR, CAMERA	
381	*3-734-481-01	PLATE	

5-9. EVF ASSEMBLY

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants idendifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



Ref.No	Part No.	Description	Remark
401	A-7019-212-A	EVF (VF-267 AEP)	402-424
401	A-7019-213-A	EVF (VF-268 UK)	402-425
402	X-3716-407-1	CABINET (UPPER) ASSY, EVF	418, 420-423
403	*1-614-872-11	TL-16 BOARD	
404	X-3686-706-1	CABINET (UPPER) ASSY, CR	405, 406
405	3-688-956-01	SPRING	
406	9-911-840-XX	CUSHION, CRT	
407	1-546-051-00	CATHODE-RAY TUBE,B/W (C1M30P4)	
408	1-451-251-21	DEFLECTION YOKE (MONOCHROME)	
409	*A-7060-103-A	COMPLETE PCB, VF-4	
410	X-3686-612-1	CABINET (LOWER) ASSY, CR	406
411	3-712-315-01	MIRROR (AL)	
412	3-696-021-01	SPRING	
413	1-556-824-91	CORD, CONNECTION (WITH PLUG)8P	

Ref.No	Part No.	Description	Remark
414	X-3716-406-1	CABINET (LOWER) ASSY, EVF	418, 419
415	X-3686-567-3	TABLE ASSY, LENS	416
416	3-696-016-11	EYE CAP	
417	*1-614-871-11	TL-15 BOARD	
418	3-713-787-01	SCREW (M2) (C LOCK), +K	
419	3-737-610-01	BRACKET (LOWER), EVF	
420	3-678-103-11	SCREW, EVF STOPPER	
421	3-688-941-01	NUT, PLATE, SHOE	
422	3-737-609-01	RAIL, GUIDE	
423	3-737-611-01	BRACKET (UPPER), EVF	
424	*3-737-677-01	LABEL, MODEL NUMBER, EVF (AEP) (VF-267 MODEL)	
424	*3-737-679-01	LABEL, MODEL NUMBER, EVF (UK) (VF-268 MODEL)	
425	*3-704-235-01	LABEL (UK), MAIN CAUTION (VF-268 MODEL)	

SECTION 6
ELECTRICAL PARTS LIST

SS-96P

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-7062-115-A	SS-96P BOARD, COMPLETE (Ref. No. 1000 Series)			
		******************			
		CAPACITOR			
C001	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C002	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C003	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C004	1-135-155-21	TANTAL CHIP	4.7MF	20%	16V
C005	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C006	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C007	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C008	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C009	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C010	1-135-162-21	TANTAL CHIP	33MF	20%	6.3V
C011	1-135-155-21	TANTAL CHIP	4.7MF	20%	16V
C012	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C013	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C014	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C015	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C016	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C017	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C018	1-135-072-21	TANTAL CHIP	0.22MF	20%	35V
C019	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C030	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C200	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C202	1-135-149-21	TANTAL CHIP	2.2MF	20%	10V
C203	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C204	1-124-779-00	ELECT CHIP	10MF	20%	16V
C205	1-124-779-00	ELECT CHIP	10MF	20%	16V
C206	1-135-177-21	TANTAL CHIP	1MF	20%	20V
C207	1-135-177-21	TANTAL CHIP	1MF	20%	20V
C208	1-124-779-00	ELECT CHIP	10MF	20%	16V
C209	1-135-159-21	TANTAL CHIP	10MF	20%	16V
C211	1-127-539-11	ELECT(SOLID)	1MF	20%	25V
C212	1-135-177-21	TANTAL CHIP	1MF	20%	20V
C213	1-135-154-21	TANTAL CHIP	3.3MF	20%	20V
C214	1-162-638-11	CERAMIC CHIP	1MF		16V
C215	1-124-779-00	ELECT CHIP	10MF	20%	16V
C216	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C217	1-164-330-21	CERAMIC CHIP	0.22MF	10%	16V
C218	1-164-330-21	CERAMIC CHIP	0.22MF	10%	16V
C219	1-164-330-21	CERAMIC CHIP	0.22MF	10%	16V
C220	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C221	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C222	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C223	1-136-718-11	************	0.1MF	5%	25V
C224	1-124-589-11	ELECT	47MF	20%	16V
C225	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C226	1-163-023-00	CERAMIC CHIP	0.015MF		50V
C227	1-135-070-00	TANTAL CHIP	0.1MF	20%	35V
C228	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C229	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C230	1-135-070-00	TANTAL CHIP	0.1MF	20%	35V
C231	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C232	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C233	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C234	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C235	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C236	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C237	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C238	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C239	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C240	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C241	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C242	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C243	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C244	1-135-154-21	TANTAL CHIP	3.3MF	20%	20V
C245	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C246	1-163-038-00	CERAMIC CHIP	0.1MF		25V
		CONNECTOR			
CN002	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P			
CN003	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P			
CN004	*1-568-110-11	CONNECTOR, BOARD TO BOARD 6P			
CN201	1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P			
CN202	1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P			
		DIODE			
D005	8-719-404-35	DIODE MA141WK			
D010	8-719-105-28	DIODE RD2.4M-B			
D200	8-719-938-75	DIODE SB05-05CP			
D201	8-719-938-75	DIODE SB05-05CP			
D202	8-719-404-32	DIODE MA141WA			
		IC			
IC001	8-752-814-40	IC CXP80116-650Q			
IC002	8-759-804-72	IC LB1631M			
IC003	8-759-013-22	IC LM358MR			
IC200	8-759-107-68	IC CX20115A			
IC201	8-759-202-45	IC CX20114			
IC202	8-759-805-06	IC CXA1127M			
IC203	8-759-100-94	IC UPC358G2			
IC204	8-759-945-17	IC MB3775PF			
		COIL			
L001	1-412-058-11	INDUCTOR CHIP 10UH			
L200	1-412-058-11	INDUCTOR CHIP 10UH			
L201	1-424-104-11	COIL, CHOKE 10UH			
L202	1-424-106-11	COIL, CHOKE 47UH			
L203	1-424-105-11	COIL, CHOKE 22UH			
		TRANSISTOR			
Q001	8-729-100-66	TRANSISTOR 2SC1623			
Q003	8-729-100-66	TRANSISTOR 2SC1623			
Q005	8-729-907-00	TRANSISTOR DTC114EU			
Q006	8-729-104-95	TRANSISTOR 2SB1040A-5			
Q007	8-729-905-35	TRANSISTOR 2SC4081-R			
Q008	8-729-905-35	TRANSISTOR 2SC4081-R			
Q011	8-729-907-03	TRANSISTOR FMG5			
Q012	8-729-905-18	TRANSISTOR DTC144EU			

SS-96P

Ref.No	Part No.	Description	Remark
Q013	8-729-402-81	TRANSISTOR XN4501	
Q014	8-729-905-35	TRANSISTOR 2SC4081-R	
Q200	8-729-905-12	TRANSISTOR DTA144EU	
Q201	8-729-905-23	TRANSISTOR 2SA1576-R	
Q202	8-729-905-35	TRANSISTOR 2SC4081-R	
Q203	8-729-905-12	TRANSISTOR DTA144EU	
Q204	8-729-905-61	TRANSISTOR DTC124EU	
Q205	8-729-905-18	TRANSISTOR DTC144EU	
Q206	8-729-905-35	TRANSISTOR 2SC4081-R	
Q207	8-729-805-25	TRANSISTOR 2SB1121	
Q208	8-729-119-83	TRANSISTOR 2SC4175-B3	
Q209	8-729-805-25	TRANSISTOR 2SB1121	
Q210	8-729-119-83	TRANSISTOR 2SC4175-B3	
Q211	8-729-905-18	TRANSISTOR DTC144EU	
Q212	8-729-920-39	TRANSISTOR IMT1US	
Q213	8-729-905-18	TRANSISTOR DTC144EU	
Q214	8-729-901-04	TRANSISTOR DTA114EK	
Q215	8-729-902-96	TRANSISTOR FMS1	

RESISTOR

Ref.No	Part No.	Description			Remark
R001	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R005	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R006	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R010	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R011	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R013	1-216-025-00	METAL GLAZE	100	5%	1/10W
R014	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R015	1-216-043-00	METAL GLAZE	560	5%	1/10W
R019	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R020	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R021	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R022	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R023	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R024	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R025	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R026	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R027	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R028	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R029	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R030	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R031	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R032	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R033	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R034	1-216-037-00	METAL GLAZE	330	5%	1/10W
R035	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R036	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R037	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R038	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R039	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R040	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R041	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R042	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R043	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R044	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R045	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R046	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R047	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R052	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R053	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R054	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R055	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R056	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R059	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R200	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R203	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R204	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R205	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R206	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R208	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R209	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R210	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R211	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R212	1-216-025-00	METAL GLAZE	100	5%	1/10W
R213	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R216	1-216-045-00	METAL GLAZE	680	5%	1/10W
R217	1-216-035-00	METAL GLAZE	270	5%	1/10W
R218	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R219	1-216-298-00	METAL GLAZE	2.2	5%	1/10W
R220	1-216-298-00	METAL GLAZE	2.2	5%	1/10W
R221	1-216-298-00	METAL GLAZE	2.2	5%	1/10W
R222	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R223	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R224	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R225	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R226	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R227	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R228	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R229	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R230	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R231	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R232	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R233	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R234	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R235	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R236	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R237	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R238	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R239	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R240	1-216-033-00	METAL GLAZE	220	5%	1/10W
R241	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R242	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R243	1-216-045-00	METAL GLAZE	680	5%	1/10W
R244	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R245	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R246	1-216-045-00	METAL GLAZE	680	5%	1/10W
R247	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R248	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R249	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R250	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R251	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R252	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R253	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R254	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R260	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R281	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R282	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R283	1-217-671-11	METAL GLAZE	1	5%	1/10W
R284	1-217-671-11	METAL GLAZE	1	5%	1/10W
R285	1-217-671-11	METAL GLAZE	1	5%	1/10W
R286	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R287	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R288	1-216-073-00	METAL GLAZE	10K	5%	1/10W

VARIABLE RESISTOR

RV001	1-238-225-11	RES, ADJ, METAL GLAZE 47K
RV002	1-238-226-11	RES, ADJ, METAL GLAZE 100K
RV201	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K

THERMISTOR

TH001	1-800-200-00	THERMISTOR

When indicating parts by reference number, please include the board name.

TESTPOINT

Ref.No	Part No.	Description	Remark
TP001	*1-535-622-11	PIN, TERMINAL	
TP002	*1-535-622-11	PIN, TERMINAL	
TP003	*1-535-622-11	PIN, TERMINAL	
TP004	*1-535-622-11	PIN, TERMINAL	
TP005	*1-535-622-11	PIN, TERMINAL	
TP006	*1-535-622-11	PIN, TERMINAL	
TP007	*1-535-622-11	PIN, TERMINAL	
TP008	*1-535-622-11	PIN, TERMINAL	

WIRE

W006	1-574-880-11	WIRE, FLAT TYPE PVC (14 CORE)

CRYSTAL

X001	1-577-116-21	VIBRATOR, CRYSTAL (16MHz)

* *

*A-7061-754-A VI-71 BOARD, COMPLETE (Ref. No. 6000 Series)
****

	1-574-479-11	CABLE, FLAT (1.0MM PITCH) 31P

CAPACITOR

Ref.No	Part No.	Description	Remark		
C201	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C202	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C203	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C204	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C205	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C206	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C207	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C208	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C209	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C402	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C403	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C405	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C406	1-135-072-21	TANTAL CHIP	0.22MF	20%	35V
C407	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C408	1-135-072-21	TANTAL CHIP	0.22MF	20%	35V
C409	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C411	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C412	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C413	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C414	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C415	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C416	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C417	1-162-997-11	CERAMIC CHIP	10PF	0.5PF	50V
C418	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C419	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C420	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C421	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C422	1-135-159-21	TANTAL CHIP	10MF	20%	16V
C426	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C427	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C429	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C430	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C431	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C433	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C434	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C435	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C436	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C437	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C438	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C439	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C442	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C443	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C444	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C445	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C447	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C448	1-135-162-21	TANTAL CHIP	33MF	20%	4V
C449	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C450	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C452	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C453	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C454	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C456	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C457	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C458	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C459	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C460	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C461	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C462	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C463	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C464	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C465	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C466	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C467	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C468	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C469	1-135-157-21	TANTAL CHIP	10MF	20%	4V
C470	1-135-157-21	TANTAL CHIP	10MF	20%	4V
C471	1-135-072-21	TANTAL CHIP	0.22MF	20%	35V
C472	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C473	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C474	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C475	1-126-207-11	ELECT CHIP	33MF	20%	4V
C476	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C477	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C478	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C479	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C480	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C481	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C483	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C485	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C486	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C487	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C488	1-135-155-21	TANTAL CHIP	4.7MF	20%	10V
C489	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C490	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C491	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C492	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C493	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C494	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C495	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C496	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C497	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C498	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C499	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C500	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C501	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C502	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C505	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C506	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C507	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C510	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C512	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C513	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C514	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C515	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C516	1-162-955-11	CERAMIC CHIP	150PF	5%	50V

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C517	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C518	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C519	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C520	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C522	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C524	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C525	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C526	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C527	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C528	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C529	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C531	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C532	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C533	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C534	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C535	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C536	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C537	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C540	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C541	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C542	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C545	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C547	1-162-946-11	CERAMIC CHIP	27PF	5%	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	1-562-880-11	CONNECTOR, CARD EDGE 15P	
CN401	1-568-111-11	CONNECTOR, BOARD TO BOARD 22P	
CN403	1-568-124-11	CONNECTOR,FPC(DIP TYPE ZIF)20P	
CN404	*1-566-765-11	PIN, CONNECTOR (PC BOARD) 10P	
CN405	*1-566-766-11	PIN, CONNECTOR (PC BOARD) 11P	
CN406	*1-566-759-11	PIN, CONNECTOR (PC BOARD) 4P	

VARIABLE CAPACITOR

Ref.No	Part No.	Description	Remark
CV401	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	
CV402	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	

DIODE

Ref.No	Part No.	Description	Remark
D201	8-719-941-09	DIODE DAP202U	
D202	8-719-941-86	DIODE DAN202U	
D204	8-719-123-85	DIODE 1SS304	
D205	8-719-123-85	DIODE 1SS304	
D206	8-719-123-85	DIODE 1SS304	
D401	8-719-123-85	DIODE 1SS304	
D402	8-719-123-85	DIODE 1SS304	
D404	8-719-123-85	DIODE 1SS304	
D405	8-719-123-85	DIODE 1SS304	
D406	8-719-941-09	DIODE DAP202UT106	
D407	8-719-123-85	DIODE 1SS304	
D409	8-719-123-85	DIODE 1SS304	
D411	8-719-949-46	DIODE 1T32	
D413	8-719-123-85	DIODE 1SS304	
D414	8-719-123-85	DIODE 1SS304	
D417	8-719-123-85	DIODE 1SS304	
D418	8-719-800-76	DIODE 1SS226	
D419	8-719-123-85	DIODE 1SS304	
D420	8-719-123-85	DIODE 1SS304	
D421	8-719-123-85	DIODE 1SS304	
D422	8-719-123-85	DIODE 1SS304	
D423	8-719-123-85	DIODE 1SS304	
D424	8-719-123-85	DIODE 1SS304	
D425	8-719-123-85	DIODE 1SS304	

FILTER

Ref.No	Part No.	Description	Remark
FL401	1-236-540-11	LPF (DEMOD OUT)	
FL402	1-236-539-11	LPF (REC Y)	

IC

Ref.No	Part No.	Description	Remark
IC403	8-759-710-29	IC NJM2235M	
IC404	8-759-710-29	IC NJM2235M	
IC405	8-759-009-22	IC MC14094BF	
IC406	8-759-970-80	IC MB673198U	
IC407	8-759-140-26	IC UPD6145G-601	
IC408	8-759-710-12	IC NJM2230M	
IC409	8-752-031-01	IC CXA1047M	
IC410	8-752-032-97	IC CXA1230AR	

COIL

Ref.No	Part No.	Description		Remark
L201	1-410-391-11	INDUCTOR CHIP	68UH	
L401	1-412-058-11	INDUCTOR CHIP	10UH	
L402	1-408-797-11	INDUCTOR CHIP	470UH	
L403	1-410-390-11	INDUCTOR CHIP	56UH	
L404	1-410-382-31	INDUCTOR CHIP	12UH	
L405	1-410-380-31	INDUCTOR CHIP	8.2UH	
L407	1-410-387-11	INDUCTOR CHIP	33UH	
L408	1-412-058-11	INDUCTOR CHIP	10UH	
L409	1-408-791-00	INDUCTOR CHIP	150UH	
L410	1-410-392-11	INDUCTOR CHIP	82UH	
L411	1-410-386-11	INDUCTOR CHIP	27UH	
L412	1-410-380-31	INDUCTOR CHIP	8.2UH	
L413	1-412-058-11	INDUCTOR CHIP	10UH	
L414	1-412-058-11	INDUCTOR CHIP	10UH	
L416	1-410-393-11	INDUCTOR CHIP	100UH	
L417	1-410-391-11	INDUCTOR CHIP	68UH	
L419	1-410-378-11	INDUCTOR CHIP	5.6UH	
L421	1-410-382-31	INDUCTOR CHIP	12UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q201	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q202	8-729-421-23	TRANSISTOR XN1216	
Q203	8-729-216-22	TRANSISTOR 2SSA1162	
Q204	8-729-421-23	TRANSISTOR XN1216	
Q205	8-729-140-63	TRANSISTOR 2SA1611-M6	
Q206	8-729-905-18	TRANSISTOR DTC144EU	
Q207	8-729-117-32	TRANSISTOR 2SC4177	
Q209	8-729-117-32	TRANSISTOR 2SC4177	
Q210	8-729-403-35	TRANSISTOR UN5113	
Q211	8-729-905-96	TRANSISTOR DTA114TU	
Q212	8-729-905-96	TRANSISTOR DTA114TU	
Q213	8-729-905-18	TRANSISTOR DTC144EU	
Q214	8-729-905-09	TRANSISTOR DTA144WU	
Q215	8-729-403-35	TRANSISTOR UN5113-TX	
Q215	8-729-905-12	TRANSISTOR DTA144EU	
Q216	8-729-905-18	TRANSISTOR DTC144EU	
Q217	8-729-905-12	TRANSISTOR DTA144EU	
Q220	8-729-905-23	TRANSISTOR 2SA1576-R	
Q221	8-729-117-32	TRANSISTOR 2SC4177	
Q225	8-729-905-18	TRANSISTOR DTC144EU	
Q226	8-729-905-09	TRANSISTOR DTA144WU	
Q228	8-729-905-18	TRANSISTOR DTC144EU	
Q229	8-729-905-09	TRANSISTOR DTA144WU	
Q402	8-729-905-57	TRANSISTOR DTA124EU	
Q403	8-729-905-57	TRANSISTOR DTA124EU	
Q404	8-729-905-18	TRANSISTOR DTC144EU	
Q407	8-729-117-32	TRANSISTOR 2SC4177	
Q409	8-729-905-18	TRANSISTOR DTC144EU	
Q410	8-729-117-32	TRANSISTOR 2SC4177	
Q411	8-729-403-35	TRANSISTOR UN5113	
Q412	8-729-117-32	TRANSISTOR 2SC4177	
Q415	8-729-905-18	TRANSISTOR DTC144EU	
Q416	8-729-905-18	TRANSISTOR DTC144EU	
Q417	8-729-905-18	TRANSISTOR DTC144EU	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q418	8-729-905-18	TRANSISTOR DTC144EU	
Q419	8-729-905-18	TRANSISTOR DTC144EU	
Q420	8-729-403-35	TRANSISTOR UN5113	
Q422	8-729-140-63	TRANSISTOR 2SA1611-M6	
Q424	8-729-202-38	TRANSISTOR 2SC3326N	
Q426	8-729-202-38	TRANSISTOR 2SC3326N	
Q427	8-729-117-32	TRANSISTOR 2SC4177	
Q429	8-729-117-32	TRANSISTOR 2SC4177	
Q430	8-729-216-22	TRANSISTOR 2SA1162	
Q431	8-729-905-18	TRANSISTOR DTC144EU	
Q432	8-729-905-18	TRANSISTOR DTC144EU	
Q433	8-729-403-35	TRANSISTOR UN5113	
Q434	8-729-117-32	TRANSISTOR 2SC4177	
Q435	8-729-905-18	TRANSISTOR DTC144EU	
Q436	8-729-905-18	TRANSISTOR DTC144EU	
Q437	8-729-905-09	TRANSISTOR DTA144WU	
Q438	8-729-117-32	TRANSISTOR 2SC4177	
Q439	8-729-117-32	TRANSISTOR 2SC4177	
Q440	8-729-117-32	TRANSISTOR 2SC4177	
Q441	8-729-117-32	TRANSISTOR 2SC4177	
Q442	8-729-117-32	TRANSISTOR 2SC4177	
Q443	8-729-905-45	TRANSISTOR DTA143EU	
Q445	8-729-117-32	TRANSISTOR 2SC4177	
Q446	8-729-117-32	TRANSISTOR 2SC4177	
Q447	8-729-117-32	TRANSISTOR 2SC4177	
Q448	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q449	8-729-905-18	TRANSISTOR DTC144EU	
Q450	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q451	8-729-117-32	TRANSISTOR 2SC4177	
Q452	8-729-117-32	TRANSISTOR 2SC4177	
Q453	8-729-421-23	TRANSISTOR XN1215	
Q454	8-729-905-18	TRANSISTOR DTC144EU	
Q455	8-729-403-35	TRANSISTOR UN5113	
Q456	8-729-117-32	TRANSISTOR 2SC4177	
Q460	8-729-117-32	TRANSISTOR 2SC4177	
Q461	8-729-403-07	TRANSISTOR XN1213	
Q462	8-729-905-18	TRANSISTOR DTC144EU	
Q463	8-729-403-35	TRANSISTOR UN5113	
Q464	8-729-117-32	TRANSISTOR 2SC4177	
Q465	8-729-117-32	TRANSISTOR 2SC4177	
Q466	8-729-117-32	TRANSISTOR 2SC4177	
Q467	8-729-905-18	TRANSISTOR DTC144EU	
Q468	8-729-905-18	TRANSISTOR DTC144EU	
Q469	8-729-216-22	TRANSISTOR 2SA1162	
Q470	8-729-117-32	TRANSISTOR 2SC4177	
Q471	8-729-905-18	TRANSISTOR DTC144EU	
Q472	8-729-216-22	TRANSISTOR 2SA1162	
Q473	8-729-102-06	TRANSISTOR 2SC2223	
Q474	8-729-102-06	TRANSISTOR 2SC2223	
Q475	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q476	8-729-117-32	TRANSISTOR 2SC4177	
Q477	8-729-117-32	TRANSISTOR 2SC4177	
Q478	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q479	8-729-403-35	TRANSISTOR UN5113	
Q480	8-729-905-18	TRANSISTOR DTC144EU	
Q481	8-729-403-35	TRANSISTOR UN5113	
Q482	8-729-905-18	TRANSISTOR DTC144EU	
Q483	8-729-905-18	TRANSISTOR DTC144EU	
Q485	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q486	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q487	8-729-905-18	TRANSISTOR DTC144EU	
Q488	8-729-905-57	TRANSISTOR DTA124EU	
Q489	8-729-905-57	TRANSISTOR DTA124EU	
Q490	8-729-905-18	TRANSISTOR DTC144EU	
Q491	8-729-117-16	TRANSISTOR 2SA1611-M6	

Ref.No	Part No.	Description	Remark
Q492	8-729-905-18	TRANSISTOR DTC144EU	
Q493	8-729-905-18	TRANSISTOR DTC144EU	
Q497	8-729-905-18	TRANSISTOR DTC144EU	
Q498	8-729-403-35	TRANSISTOR UN5113	
Q499	8-729-403-35	TRANSISTOR UN5113	
Q500	8-729-117-32	TRANSISTOR 2SC4177	
Q501	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q502	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q503	8-729-117-32	TRANSISTOR 2SC4177	
Q504	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q505	8-729-117-32	TRANSISTOR 2SC4177	
Q506	8-729-905-18	TRANSISTOR DTC144EU	
Q507	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q509	8-729-117-32	TRANSISTOR 2SC4177	
Q510	8-729-117-32	TRANSISTOR 2SC4177	
Q513	8-729-403-35	TRANSISTOR UN5113	

RESISTOR

Ref.No	Part No.	Description				Remark
R201	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R202	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R203	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R204	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R205	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R206	1-216-815-11	METAL GLAZE	330	5%	1/16W	
R207	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R208	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R209	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R210	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R211	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R212	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R213	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R215	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R216	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R217	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R218	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R219	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R220	1-216-855-11	METAL GLAZE	680K	5%	1/16W	
R221	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R222	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R223	1-216-807-11	METAL GLAZE	68	5%	1/16W	
R224	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R225	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R226	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R227	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R228	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R229	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R232	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R233	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R237	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R238	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R239	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R240	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R241	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R243	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R244	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R301	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R302	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R303	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R304	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R306	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W	
R307	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R308	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R310	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R311	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R312	1-216-810-11	METAL GLAZE	120	5%	1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R313	1-216-813-11	METAL GLAZE	220	5%	1/16W
R314	1-216-813-11	METAL GLAZE	220	5%	1/16W
R315	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R316	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R317	1-216-809-11	METAL GLAZE	100	5%	1/16W
R318	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R319	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R320	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R321	1-216-814-11	METAL GLAZE	270	5%	1/16W
R322	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R323	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R324	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R325	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R326	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R327	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R328	1-216-818-11	METAL GLAZE	560	5%	1/16W
R329	1-216-817-11	METAL GLAZE	470	5%	1/16W
R330	1-216-817-11	METAL GLAZE	470	5%	1/16W
R331	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R333	1-216-864-11	METAL GLAZE	0	5%	1/16W
R334	1-216-809-11	METAL GLAZE	100	5%	1/16W
R335	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R337	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R338	1-216-848-11	METAL GLAZE	180K	5%	1/16W
R340	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R341	1-216-864-11	METAL GLAZE	0	5%	1/16W
R342	1-216-809-11	METAL GLAZE	100	5%	1/16W
R352	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R354	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R356	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R357	1-216-817-11	METAL GLAZE	470	5%	1/16W
R358	1-216-817-11	METAL GLAZE	470	5%	1/16W
R359	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R360	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R361	1-216-039-00	METAL GLAZE	390	5%	1/10W
R362	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R363	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R364	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R365	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R366	1-216-820-11	METAL GLAZE	820	5%	1/16W
R367	1-216-816-11	METAL GLAZE	390	5%	1/16W
R368	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R369	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R370	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R371	1-216-295-00	METAL GLAZE	0	5%	1/10W
R372	1-216-043-00	METAL GLAZE	560	5%	1/10W
R373	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R374	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R375	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R376	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R377	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R378	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R379	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R380	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R381	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R382	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R386	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R389	1-216-864-11	METAL GLAZE	0	5%	1/16W
R390	1-216-809-11	METAL GLAZE	100	5%	1/16W
R391	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R392	1-216-813-11	METAL GLAZE	220	5%	1/16W
R393	1-216-819-11	METAL GLAZE	680	5%	1/16W
R394	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R395	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R396	1-216-821-11	METAL GLAZE	1K	5%	1/16W

Ref.No	Part No.	Description			Remark
R397	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R398	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R400	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R401	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R402	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R403	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R404	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R405	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R406	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R407	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R408	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R409	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R410	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R411	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R412	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R413	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R414	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R415	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R416	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R417	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R418	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R419	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R420	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R421	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R422	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R423	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R424	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R425	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R426	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R427	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R428	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R429	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R430	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R431	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R432	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R433	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R434	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R435	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R436	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R438	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R440	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R441	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R442	1-216-818-11	METAL GLAZE	560	5%	1/16W
R444	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R445	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R446	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R447	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R448	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R449	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R450	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R451	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R452	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R453	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R454	1-216-045-00	METAL GLAZE	680	5%	1/10W
R455	1-216-848-11	METAL GLAZE	180K	5%	1/16W
R456	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R457	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R458	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R459	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R460	1-216-848-11	METAL GLAZE	180K	5%	1/16W
R461	1-216-817-11	METAL GLAZE	470	5%	1/16W
R462	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R463	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R464	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R465	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R466	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R467	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R468	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R469	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R471	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R472	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R473	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R475	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R476	1-216-023-00	METAL GLAZE	82	5%	1/10W
R477	1-216-039-00	METAL GLAZE	390	5%	1/10W
R478	1-216-039-00	METAL GLAZE	390	5%	1/10W
R479	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R480	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R481	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R482	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R484	1-216-816-11	METAL GLAZE	390	5%	1/16W
R485	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R486	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R487	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R488	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R489	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R490	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R491	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R492	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R493	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R494	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R495	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R496	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R498	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R499	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R500	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R501	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R502	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R503	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R504	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R505	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R506	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R507	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R508	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R509	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R510	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R511	1-216-864-11	METAL GLAZE	0	5%	1/16W
R512	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R513	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R514	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R515	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R516	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R517	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R518	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R519	1-216-819-11	METAL GLAZE	680	5%	1/16W
R520	1-216-864-11	METAL GLAZE	0	5%	1/16W
R521	1-216-813-11	METAL GLAZE	220	5%	1/16W
R522	1-216-813-11	METAL GLAZE	220	5%	1/16W
R523	1-216-813-11	METAL GLAZE	220	5%	1/16W
R525	1-216-819-11	METAL GLAZE	680	5%	1/16W
R526	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R527	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R528	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R529	1-216-817-11	METAL GLAZE	470	5%	1/16W
R530	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R531	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R532	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R535	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R536	1-216-864-11	METAL GLAZE	0	5%	1/16W
R537	1-216-820-11	METAL GLAZE	820	5%	1/16W
R538	1-216-819-11	METAL GLAZE	680	5%	1/16W
R539	1-216-820-11	METAL GLAZE	820	5%	1/16W
R540	1-216-819-11	METAL GLAZE	680	5%	1/16W
R541	1-216-819-11	METAL GLAZE	680	5%	1/16W
R543	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R544	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R545	1-216-818-11	METAL GLAZE	560	5%	1/16W
R546	1-216-814-11	METAL GLAZE	270	5%	1/16W
R547	1-216-814-11	METAL GLAZE	270	5%	1/16W
R548	1-216-816-11	METAL GLAZE	390	5%	1/16W
R549	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R551	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R552	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R553	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R554	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R555	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R556	1-216-817-11	METAL GLAZE	470	5%	1/16W
R557	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R558	1-216-817-11	METAL GLAZE	470	5%	1/16W
R559	1-216-817-11	METAL GLAZE	470	5%	1/16W
R560	1-216-864-11	METAL GLAZE	0	5%	1/16W
R561	1-216-817-11	METAL GLAZE	470	5%	1/16W
R562	1-216-815-11	METAL GLAZE	330	5%	1/16W
R563	1-216-817-11	METAL GLAZE	470	5%	1/16W
R564	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R565	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R566	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R567	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R568	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R569	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R570	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R571	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R572	1-216-820-11	METAL GLAZE	820	5%	1/16W
R579	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R581	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R582	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R583	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R584	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R585	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R586	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R587	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R588	1-216-864-11	METAL GLAZE	0	5%	1/16W
R590	1-216-864-11	METAL GLAZE	0	5%	1/16W
R592	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R593	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R594	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R595	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R596	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R597	1-216-841-11	METAL GLAZE	47K	5%	1/16W

VARIABLE RESISTOR

RV401	1-230-867-11	RES, ADJ, METAL GLAZE 1K
RV404	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV405	1-230-867-11	RES, ADJ, METAL GLAZE 1K
RV406	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K
RV407	1-230-871-11	RES, ADJ, METAL GLAZE 22K
RV408	1-230-870-11	RES, ADJ, METAL GLAZE 10K
RV409	1-230-870-11	RES, ADJ, METAL GLAZE 10K
RV410	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K
RV416	1-230-871-11	RES, ADJ, METAL GLAZE 22K
RV417	1-230-874-11	RES, ADJ, METAL GLAZE 100K

THERMISTOR

TH201	1-807-752-11	THERMISTOR

When indicating parts by reference number, please include the board name.

TESTPOINT

Ref.No	Part No.	Description	Remark
TP401	*1-535-622-11	PIN, TERMINAL	
TP402	*1-535-622-11	PIN, TERMINAL	

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*A-7061-753-A VI-72 BOARD, COMPLETE (Ref. No. 1000 Series)
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A-7068-154-A HD-8P BOARD, COMPLETE (HIC)

CAPACITOR

Ref.No	Part No.	Description	Remark		
C601	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C602	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C603	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C604	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C605	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C606	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V
C607	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C608	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C609	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C610	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C612	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C613	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C614	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C615	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C616	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C617	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C620	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C621	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C622	1-135-170-21	TANTAL. CHIP	6.8MF	20%	4V
C623	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C624	1-135-151-21	TANTAL. CHIP	4.7MF	20%	4V
C625	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C626	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C627	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C628	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C629	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C630	1-135-073-00	TANTAL. CHIP	0.33MF	20%	35V
C631	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C632	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C633	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C634	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C635	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C637	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C638	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C639	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C640	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C641	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C642	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C643	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C644	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C645	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C647	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C648	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C649	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C650	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C651	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C654	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C655	1-163-118-00	CERAMIC CHIP	110PF	5%	50V
C656	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C657	1-163-205-00	CERAMIC CHIP	0.001MF	5%	50V
C658	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C659	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C660	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C661	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C662	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V
C663	1-135-180-21	TANTAL. CHIP	3.3MF	20%	4V
C664	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C665	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C666	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C667	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C668	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C671	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C672	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C675	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C676	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C677	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C678	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C679	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C680	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C682	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C683	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C684	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C687	1-135-170-21	TANTAL. CHIP	6.8MF	20%	4V
C688	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C690	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C691	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C692	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C702	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C703	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C704	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C705	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C706	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C707	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C708	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C709	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C710	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C711	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C712	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C713	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C719	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C720	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C722	1-135-158-21	TANTAL. CHIP	15MF	20%	4V
C724	1-163-092-00	CERAMIC CHIP	9PF	0.25PF	50V
C725	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C726	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C728	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C729	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C730	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C732	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C733	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C734	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C737	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C738	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C739	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C740	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C741	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C742	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C743	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V

VARIABLE CAPACITOR

Ref.No	Part No.	Description	Remark
CV601	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	
CV602	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	

DIODE

Ref.No	Part No.	Description	Remark
D602	8-719-800-76	DIODE 1SS226	
D603	8-719-100-05	DIODE MA152WK	
D604	8-719-800-76	DIODE 1SS226	
D605	8-719-800-76	DIODE 1SS226	
D609	8-719-941-86	DIODE DAN202U	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
D614	8-719-800-76	DIODE 1SS226	
D616	8-719-404-40	DIODE MA121	
D619	8-719-941-86	DIODE DAN202U	
D620	8-719-941-86	DIODE DAN202U	
D621	8-719-941-86	DIODE DAN202U	
D622	8-719-941-86	DIODE DAN202U	
D623	8-719-800-76	DIODE 1SS226	
D624	8-719-941-09	DIODE DAP202U	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL601	1-415-518-31	DELAY LINE, DUAL 1H-2H	
DL603	1-415-696-11	DL, LC	
DL604	1-415-646-11	DL, LC	

FILTER

Ref.No	Part No.	Description	Remark
FL602	1-236-538-11	BPF	
FL603	1-409-394-11	TRAP, CHROMA EMPHASIS	
FL604	1-236-537-11	BPF	
FL605	1-235-632-11	BPF	
FL606	1-235-633-11	BPF	

IC

Ref.No	Part No.	Description	Remark
IC601	8-752-202-10	IC CX22021	
IC602	8-752-003-	IC CX20032	
IC603	8-759-202-67	IC CX20117	
IC604	8-759-914-56	IC CX23054	
IC605	8-759-710-09	IC NJM2233AM	
IC606	8-759-710-07	IC NJM2234M	
IC609	8-759-925-60	IC BA401	

COIL

Ref.No	Part No.	Description	Remark
L601	1-410-657-21	INDUCTOR CHIP 180UH	
L602	1-410-385-11	INDUCTOR CHIP 22UH	
L603	1-410-393-11	INDUCTOR CHIP 100UH	
L604	1-410-656-11	INDUCTOR CHIP 150UH	
L605	1-410-655-31	INDUCTOR CHIP 120UH	
L606	1-410-393-11	INDUCTOR CHIP 100UH	
L607	1-412-058-11	INDUCTOR CHIP 10UH	
L608	1-410-385-11	INDUCTOR CHIP 22UH	
L609	1-410-391-11	INDUCTOR CHIP 68UH	
L610	1-410-369-11	INDUCTOR CHIP 1UH	
L611	1-410-369-11	INDUCTOR CHIP 1UH	
L612	1-412-058-11	INDUCTOR CHIP 10UH	
L613	1-412-058-11	INDUCTOR CHIP 10UH	
L614	1-408-777-00	INDUCTOR CHIP 10UH	
L616	1-410-388-21	INDUCTOR CHIP 39UH	
L617	1-410-386-11	INDUCTOR CHIP 27UH	
L620	1-412-058-11	INDUCTOR CHIP 10UH	
L621	1-410-393-11	INDUCTOR CHIP 100UH	
L623	1-408-776-00	INDUCTOR CHIP 8.2UH	
L624	1-410-387-11	INDUCTOR CHIP 33UH	
L626	1-410-385-11	INDUCTOR CHIP 22UH	
L627	1-410-393-11	INDUCTOR CHIP 100UH	

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV601	1-404-594-11	COIL, VARIABLE	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q601	8-729-216-22	TRANSISTOR 2SA1162	
Q602	8-729-905-23	TRANSISTOR 2SA1576-R	
Q604	8-729-905-35	TRANSISTOR 2SC4081-R	
Q605	8-729-905-18	TRANSISTOR DTC144EU	
Q606	8-729-905-35	TRANSISTOR 2SC4081-R	
Q608	8-729-904-07	TRANSISTOR FMG2	
Q609	8-729-901-01	TRANSISTOR DTC144EK	
Q610	8-729-904-07	TRANSISTOR FMG2	
Q612	8-729-901-01	TRANSISTOR DTC144EK	
Q613	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q614	8-729-905-12	TRANSISTOR DTA144EU	
Q615	8-729-905-45	TRANSISTOR DTA143EU	
Q616	8-729-905-23	TRANSISTOR 2SA1576-R	
Q617	8-729-905-35	TRANSISTOR 2SC4081-R	
Q618	8-729-905-35	TRANSISTOR 2SC4081-R	
Q630	8-729-901-01	TRANSISTOR DTC144EK	
Q631	8-729-100-66	TRANSISTOR 2SC1623	
Q632	8-729-100-66	TRANSISTOR 2SC1623	
Q633	8-729-901-06	TRANSISTOR DTA144EK	
Q634	8-729-904-07	TRANSISTOR FMG2	
Q636	8-729-904-20	TRANSISTOR FMA2	
Q638	8-729-901-06	TRANSISTOR DTA144EK	
Q639	8-729-901-01	TRANSISTOR DTC144EK	
Q640	8-729-901-06	TRANSISTOR DTA144EK	
Q641	8-729-901-06	TRANSISTOR DTA144EK	
Q644	8-729-901-01	TRANSISTOR DTC144EK	
Q645	8-729-905-35	TRANSISTOR 2SC4081-R	
Q646	8-729-903-10	TRANSISTOR FMW1	
Q647	8-729-216-22	TRANSISTOR 2SA1162	
Q648	8-729-100-66	TRANSISTOR 2SC1623	
Q649	8-729-905-35	TRANSISTOR 2SC4081-R	
Q650	8-729-100-66	TRANSISTOR 2SC1623	
Q651	8-729-901-06	TRANSISTOR DTA144EK	
Q652	8-729-100-66	TRANSISTOR 2SC1623	
Q654	8-729-905-35	TRANSISTOR 2SC4081-R	
Q655	8-729-905-15	TRANSISTOR DTC144WU	
Q656	8-729-905-18	TRANSISTOR DTC144EU	
Q657	8-729-905-12	TRANSISTOR DTA144EU	
Q661	8-729-905-12	TRANSISTOR DTA144EU	
Q662	8-729-905-23	TRANSISTOR 2SA1576-R	
Q663	8-729-904-07	TRANSISTOR FMG2	
Q664	8-729-904-20	TRANSISTOR FMA2	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R102	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R104	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R105	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R106	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R107	1-216-817-11	METAL GLAZE	470	5%	1/16W	
R109	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R112	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R113	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R114	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R115	1-216-839-11	METAL GLAZE	33K	5%	1/16W	
R116	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R117	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R118	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R122	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R123	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R124	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R125	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R126	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R127	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R128	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R129	1-216-812-11	METAL GLAZE	180	5%	1/16W	
R130	1-216-812-11	METAL GLAZE	180	5%	1/16W	
R131	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R132	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R134	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R143	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R144	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R146	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R147	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R148	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R149	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R150	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R152	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R601	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R602	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R603	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R604	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R605	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R606	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R607	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R608	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R609	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R610	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R611	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R613	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R614	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R615	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R618	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R619	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R620	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R621	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R622	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R623	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R624	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R625	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R626	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R627	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R628	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R629	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R630	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R632	1-216-848-11	METAL GLAZE	180K	5%	1/16W	
R636	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R637	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R638	1-216-816-11	METAL GLAZE	390	5%	1/16W	
R639	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R640	1-216-854-11	METAL GLAZE	560K	5%	1/16W	
R641	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R644	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R647	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R649	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R650	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R651	1-216-817-11	METAL GLAZE	470	5%	1/16W	
R652	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R653	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R654	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R655	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R656	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R657	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W	
R658	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R659	1-216-846-11	METAL GLAZE	120K	5%	1/16W	
R660	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R661	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R662	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R663	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R664	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R665	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W	
R666	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R667	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R668	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R669	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R672	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R673	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R674	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R675	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R676	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R677	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R678	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R679	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W	
R680	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R681	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R682	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W	
R683	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R684	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R685	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R686	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R688	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R691	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R692	1-216-801-11	METAL GLAZE	22	5%	1/16W	
R693	1-216-810-11	METAL GLAZE	120	5%	1/16W	
R694	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R695	1-216-834-11	METAL GLAZE	12K	5%	1/16W	
R696	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R697	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R698	1-216-814-11	METAL GLAZE	270	5%	1/16W	
R699	1-216-810-11	METAL GLAZE	120	5%	1/16W	
R700	1-216-816-11	METAL GLAZE	390	5%	1/16W	
R702	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R705	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R706	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R707	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R708	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R709	1-216-834-11	METAL GLAZE	12K	5%	1/16W	
R710	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R711	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R712	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R713	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R714	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R715	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R716	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R717	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R744	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R745	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R746	1-216-838-11	METAL GLAZE	27K	5%	1/16W	
R747	1-216-817-11	METAL GLAZE	470	5%	1/16W	
R748	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R749	1-216-815-11	METAL GLAZE	330	5%	1/16W	
R750	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R751	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R752	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R753	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R754	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R755	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R756	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R757	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R758	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R759	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R760	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R761	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R762	1-216-820-11	METAL GLAZE	820	5%	1/16W	
R763	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R765	1-216-820-11	METAL GLAZE	820	5%	1/16W	
R771	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R772	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R774	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R779	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R787	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R789	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R790	1-216-819-11	METAL GLAZE	680	5%	1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R791	1-216-047-00	METAL GLAZE	820	5%	1/10W
R795	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R796	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R797	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R798	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R799	1-216-837-11	METAL GLAZE	22K	5%	1/16W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV601	1-230-871-11	RES, ADJ, METAL GLAZE 22K
RV602	1-230-871-11	RES, ADJ, METAL GLAZE 22K
RV603	1-230-873-11	RES, ADJ, METAL GLAZE 47K
RV604	1-230-875-21	RES, ADJ, METAL GLAZE 220K

CRYSTAL

Ref.No	Part No.	Description
X601	1-567-504-81	OSCILLATOR, CRYSTAL (4.43MHz)

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*A-7061-755-A MR-20 BOARD, COMPLETE (Ref. No. 1000 Series)
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A-7068-155-A HR-3P BOARD, COMPLETE (HIC)

CAPACITOR

Ref.No	Part No.	Description			Remark
C801	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C802	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C803	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C804	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C805	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C806	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C807	1-135-161-21	TANTAL CHIP	22MF	20%	6.3V
C808	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C809	1-135-157-21	TANTAL CHIP	10MF	20%	4V
C810	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C811	1-135-161-21	TANTAL CHIP	22MF	20%	6.3V
C812	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C813	1-162-940-11	CERAMIC CHIP	9PF	0.5PF	50V
C814	1-162-940-11	CERAMIC CHIP	9PF	0.5PF	50V
C816	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C817	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C818	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C819	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C820	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C821	1-135-155-21	TANTAL CHIP	4.7MF	20%	16V
C822	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C823	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C824	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C825	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C827	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C828	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C829	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C830	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C831	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C832	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C833	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C834	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C835	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C838	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C839	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C840	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C841	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C845	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C846	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C847	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C848	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C849	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C850	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C851	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C853	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C854	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C855	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C856	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C857	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C858	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C859	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C860	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C861	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C862	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C863	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C864	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C865	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C866	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C870	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C871	1-162-968-11	CERAMIC CHIP	0.0047MF	10%	50V
C872	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C873	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C876	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C880	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C881	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C882	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C883	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C884	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C885	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C886	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C887	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C890	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C891	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C892	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C893	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C894	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C896	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C897	1-164-227-11	CERAMIC CHIP	0.022MF	10%	25V
C898	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C899	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C900	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C902	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C905	1-135-157-21	TANTAL CHIP	10MF	20%	4V
C906	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C907	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C908	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C951	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C952	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C953	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C954	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C955	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C956	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C957	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C958	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C959	1-135-180-21	TANTAL CHIP	3.3MF	20%	4V
C960	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C961	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C962	1-135-180-21	TANTAL CHIP	3.3MF	20%	4V

CONNECTOR

Ref.No	Part No.	Description
CN801	1-566-516-11	CONNECTOR, FPC (ZIF) 16P
CN802	1-506-485-11	PIN, CONNECTOR 6P
CN804	*1-566-766-11	PIN, CONNECTOR (PC BOARD) 11P
CN805	*1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P

When indicating parts by reference number, please include the board name.

DIODE

Ref.No	Part No.	Description	Remark
D801	8-719-123-85	DIODE 1SS304	
D802	8-719-123-85	DIODE 1SS304	
D804	8-719-800-76	DIODE 1SS226	
D805	8-719-123-85	DIODE 1SS304	
D806	8-719-123-85	DIODE 1SS304	
D807	8-719-100-05	MA152WK	
D808	8-719-123-85	DIODE 1SS304	
D810	8-719-123-85	DIODE 1SS304	
D811	8-719-800-76	DIODE 1SS226	
D812	8-719-123-85	DIODE 1SS304	
D813	8-719-123-85	DIODE 1SS304	
D814	8-719-123-85	DIODE 1SS304	
D951	8-719-800-76	DIODE 1SS226	

IC

Ref.No	Part No.	Description	Remark
IC801	8-759-209-17	IC TA8607F	
IC802	8-759-925-60	IC BA401	

COIL

Ref.No	Part No.	Description	Remark
L801	1-410-732-21	INDUCTOR CHIP 0.18UH	
L802	1-410-381-11	INDUCTOR CHIP 10UH	
L803	1-410-382-31	INDUCTOR CHIP 12UH	
L804	1-410-384-31	INDUCTOR CHIP 18UH	
L805	1-410-384-31	INDUCTOR CHIP 18UH	
L806	1-410-381-11	INDUCTOR CHIP 10UH	
L807	1-410-381-11	INDUCTOR CHIP 10UH	
L808	1-408-795-21	INDUCTOR CHIP 330UH	
L809	1-410-167-41	INDUCTOR CHIP 820UH	
L810	1-410-657-21	INDUCTOR CHIP 180UH	
L811	1-410-379-21	INDUCTOR CHIP 6.8UH	
L812	1-410-374-11	INDUCTOR CHIP 2.7UH	
L813	1-410-380-31	INDUCTOR CHIP 8.2UH	
L814	1-410-379-21	INDUCTOR CHIP 6.8UH	
L815	1-410-384-31	INDUCTOR CHIP 18UH	
L816	1-408-797-11	INDUCTOR CHIP 470UH	
L817	1-408-797-11	INDUCTOR CHIP 470UH	
L818	1-410-384-31	INDUCTOR CHIP 18UH	
L819	1-408-793-21	INDUCTOR CHIP 220UH	
L820	1-410-381-11	INDUCTOR CHIP 10UH	
L821	1-410-384-31	INDUCTOR CHIP 18UH	
L822	1-410-383-31	INDUCTOR CHIP 15UH	
L823	1-410-387-11	INDUCTOR CHIP 33UH	
L825	1-410-381-11	INDUCTOR CHIP 10UH	
L951	1-410-381-11	INDUCTOR CHIP 10UH	
L952	1-410-387-11	INDUCTOR CHIP 33UH	
L953	1-410-381-11	INDUCTOR CHIP 10UH	
L954	1-410-381-11	INDUCTOR CHIP 10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q801	8-729-901-02	TRANSISTOR DTC124XK	
Q802	8-729-105-68	TRANSISTOR 2SC3356-K	
Q803	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q804	8-729-117-32	TRANSISTOR 2SC4177	
Q805	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q806	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q807	8-729-403-35	TRANSISTOR UN5113	
Q808	8-729-216-22	TRANSISTOR 2SA1162	
Q809	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q810	8-729-216-22	TRANSISTOR 2SA1162	
Q811	8-729-117-32	TRANSISTOR 2SC4177	
Q812	8-729-117-32	TRANSISTOR 2SC4177	
Q813	8-729-403-07	TRANSISTOR XN1213	
Q814	8-729-905-45	TRANSISTOR DTA143EU	
Q815	8-729-905-09	TRANSISTOR DTA144WU	
Q817	8-729-117-32	TRANSISTOR 2SC4177	
Q819	8-729-117-32	TRANSISTOR 2SC4177	
Q820	8-729-421-23	TRANSISTOR XN1216	
Q821	8-729-117-32	TRANSISTOR 2SC4177	
Q822	8-729-117-32	TRANSISTOR 2SC4177	
Q823	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q824	8-729-905-18	TRANSISTOR DTC144EU	
Q825	8-729-403-07	TRANSISTOR XN1213	
Q826	8-729-403-35	TRANSISTOR UN5113	
Q827	8-729-905-18	TRANSISTOR DTC144EU	
Q828	8-729-907-00	TRANSISTOR DTC114EU	
Q829	8-729-905-18	TRANSISTOR DTC144EU	
Q830	8-729-216-22	TRANSISTOR 2SA1162	
Q831	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q832	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q833	8-729-202-38	TRANSISTOR 2SC3326N	
Q836	8-729-100-66	TRANSISTOR 2SC1623	
Q837	8-729-117-32	TRANSISTOR 2SC4177	
Q838	8-729-117-32	TRANSISTOR 2SC4177	
Q839	8-729-117-32	TRANSISTOR 2SC4177	
Q840	8-729-905-XX	TRANSISTOR DTC114TU	
Q841	8-729-117-32	TRANSISTOR 2SC4177	
Q842	8-729-117-32	TRANSISTOR 2SC4177	
Q843	8-729-117-32	TRANSISTOR 2SC4177	
Q844	8-729-905-23	TRANSISTOR 2SA1576-R	
Q847	8-729-117-32	TRANSISTOR 2SC4177	
Q848	8-729-905-18	TRANSISTOR DTC144EU	
Q849	8-729-905-18	TRANSISTOR DTC144EU	
Q850	8-729-117-32	TRANSISTOR 2SC4177	
Q851	8-729-905-18	TRANSISTOR DTC144EU	
Q852	8-729-216-22	TRANSISTOR 2SA1162	
Q950	8-729-905-35	TRANSISTOR 2SC4081-R	
Q951	8-729-402-81	TRANSISTOR XN4501	
Q952	8-729-117-32	TRANSISTOR 2SC4177	
Q953	8-729-905-23	TRANSISTOR 2SA1576-R	
Q954	8-729-117-32	TRANSISTOR 2SC4177	
Q955	8-729-403-42	TRANSISTOR XN1401	
Q956	8-729-117-32	TRANSISTOR 2SC4177	
Q957	8-729-905-23	TRANSISTOR 2SA1576-R	
Q958	8-729-117-32	TRANSISTOR 2SC4177	
Q959	8-729-905-18	TRANSISTOR DTC144EU	

RESISTOR

Ref.No	Part No.	Description	Remark
R801	1-216-832-11	METAL GLAZE 8.2K 5% 1/16W	
R802	1-216-817-11	METAL GLAZE 470 5% 1/16W	
R803	1-216-826-11	METAL GLAZE 2.7K 5% 1/16W	
R804	1-216-811-11	METAL GLAZE 150 5% 1/16W	
R805	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R806	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R807	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R808	1-216-817-11	METAL GLAZE 470 5% 1/16W	
R809	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R810	1-216-826-11	METAL GLAZE 2.7K 5% 1/16W	
R811	1-216-822-11	METAL GLAZE 1.2K 5% 1/16W	
R812	1-216-823-11	METAL GLAZE 1.5K 5% 1/16W	
R813	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R814	1-216-826-11	METAL GLAZE 2.7K 5% 1/16W	
R817	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R818	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R819	1-216-807-11	METAL GLAZE 68 5% 1/16W	
R820	1-216-804-11	METAL GLAZE 39 5% 1/16W	
R821	1-216-818-11	METAL GLAZE 560 5% 1/16W	
R822	1-216-814-11	METAL GLAZE 270 5% 1/16W	
R823	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R824	1-216-837-11	METAL GLAZE 22K 5% 1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R825	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R826	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R827	1-216-811-11	METAL GLAZE	150	5%	1/16W
R828	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R829	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R830	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R831	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R832	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R834	1-216-818-11	METAL GLAZE	560	5%	1/16W
R835	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R836	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R837	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R838	1-216-817-11	METAL GLAZE	470	5%	1/16W
R839	1-216-817-11	METAL GLAZE	470	5%	1/16W
R840	1-216-814-11	METAL GLAZE	270	5%	1/16W
R841	1-216-814-11	METAL GLAZE	270	5%	1/16W
R842	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R843	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R844	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R846	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R847	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R848	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R849	1-216-817-11	METAL GLAZE	470	5%	1/16W
R850	1-216-810-11	METAL GLAZE	120	5%	1/16W
R852	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R855	1-216-815-11	METAL GLAZE	330	5%	1/16W
R856	1-216-820-11	METAL GLAZE	820	5%	1/16W
R857	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R858	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R859	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R861	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R862	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R865	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R866	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R867	1-216-818-11	METAL GLAZE	560	5%	1/16W
R868	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R869	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R870	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R874	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R875	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R876	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R877	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R878	1-216-812-11	METAL GLAZE	180	5%	1/16W
R879	1-216-812-11	METAL GLAZE	180	5%	1/16W
R882	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R883	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R884	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R885	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R886	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R887	1-216-818-11	METAL GLAZE	560	5%	1/16W
R888	1-216-816-11	METAL GLAZE	390	5%	1/16W
R889	1-216-817-11	METAL GLAZE	470	5%	1/16W
R890	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R891	1-216-818-11	METAL GLAZE	560	5%	1/16W
R895	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R896	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R899	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R901	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R902	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R907	1-216-817-11	METAL GLAZE	470	5%	1/16W
R908	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R909	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R910	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R911	1-216-809-11	METAL GLAZE	100	5%	1/16W
R912	1-216-296-00	METAL GLAZE	0	5%	1/8W
R913	1-216-809-11	METAL GLAZE	100	5%	1/16W
R914	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R915	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R916	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R917	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R920	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R921	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R922	1-216-817-11	METAL GLAZE	470	5%	1/16W
R923	1-216-817-11	METAL GLAZE	470	5%	1/16W
R924	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R925	1-216-817-11	METAL GLAZE	470	5%	1/16W
R926	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R927	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R928	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R929	1-216-817-11	METAL GLAZE	470	5%	1/16W
R930	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R931	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R932	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R934	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R935	1-216-817-11	METAL GLAZE	470	5%	1/16W
R936	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R937	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R938	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R939	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R941	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R944	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R945	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R946	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R947	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R951	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R952	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R953	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R954	1-216-811-11	METAL GLAZE	150	5%	1/16W
R955	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R956	1-216-820-11	METAL GLAZE	820	5%	1/16W
R957	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R958	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R959	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R960	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R961	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R962	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R963	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R964	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R965	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R966	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R967	1-216-818-11	METAL GLAZE	560	5%	1/16W
R968	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R969	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R970	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R971	1-216-841-11	METAL GLAZE	47K	5%	1/16W

VARIABLE RESISTOR

RV801	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K
RV802	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K
RV803	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K
RV805	1-230-868-11	RES, ADJ, METAL GRAZE 2.2K
RV806	1-230-867-11	RES, ADJ, METAL GRAZE 1K

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*A-7061-757-A VC-54P BOARD, COMPLETE (Ref. No. 2000 Series)

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A-7068-143-A DT-73 BOARD, COMPLETE (HIC)

1-574-480-11	CABLE, FLAT (1.0MM PITCH) 34P
1-574-878-11	WIRE, FLAT TYPE PVC (16 CORE)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	1-574-879-11	WIRE, FLAT TYPE PVC (20 CORE)			
		CAPACITOR			
C221	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C222	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C223	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C224	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C225	1-126-204-11	ELECT CHIP	47MF	20%	16V
C226	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C227	1-126-204-11	ELECT CHIP	47MF	20%	16V
C228	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C229	1-135-092-21	TANTAL CHIP	3.3MF	20%	16V
C230	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C232	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C234	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C235	1-126-602-11	ELECT CHIP	3.3MF	20%	50V
C236	1-163-036-00	CERAMIC CHIP	0.068MF		50V
C237	1-126-400-11	ELECT CHIP	22MF	20%	35V
C238	1-135-089-21	TANTAL CHIP	6.8MF	20%	20V
C239	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C241	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C242	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C243	1-135-145-11	TANTAL CHIP	0.47MF	20%	25V
C244	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C245	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C246	1-126-204-11	ELECT CHIP	47MF	20%	16V
C258	1-163-036-00	CERAMIC CHIP	0.068MF		50V
C261	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C262	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C263	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C264	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C265	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C266	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C267	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C268	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C269	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C272	1-135-156-21	TANTAL CHIP	6.8MF	20%	10V
C273	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C274	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C275	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C276	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C277	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C279	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C283	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C285	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C287	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C288	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C290	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C291	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C292	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C293	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C294	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C295	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C299	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
		CONNECTOR			
CN221	1-568-112-11	CONNECTOR, BOARD TO BOARD 6P			
CN222	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P			
		TRIMMER			
CT261	1-141-331-11	CAP, VAR, TRIMMER (CHIP)			
		DIODE			
D222	8-719-404-49	DIODE MA111			

Ref.No	Part No.	Description			Remark
D223	8-719-404-49	DIODE MA111			
D224	8-719-404-49	DIODE MA111			
D225	8-719-404-49	DIODE MA111			
D261	8-713-220-00	DIODE 1T32-2			
		FILTER			
FL221	1-236-368-11	LPF (YH)			
FL222	1-415-634-21	DL (LC)			
		IC			
IC261	8-752-326-08	IC CXD1159Q			
		COIL			
L221	1-412-031-11	INDUCTOR CHIP	47UH		
L222	1-412-034-21	INDUCTOR CHIP	330UH		
L223	1-410-192-51	INDUCTOR CHIP	1UH		
L224	1-412-032-11	INDUCTOR CHIP	100UH		
L225	1-410-192-51	INDUCTOR CHIP	1UH		
L226	1-410-192-51	INDUCTOR CHIP	1UH		
L227	1-410-192-51	INDUCTOR CHIP	1UH		
L228	1-410-192-51	INDUCTOR CHIP	1UH		
L229	1-410-192-51	INDUCTOR CHIP	1UH		
L230	1-412-029-11	INDUCTOR CHIP	10UH		
L262	1-410-204-31	INDUCTOR CHIP	10UH		
L263	1-410-192-51	INDUCTOR CHIP	1UH		
		TRANSISTOR			
Q221	8-729-809-88	TRANSISTOR 2SA1416-S			
Q222	8-729-810-01	TRANSISTOR 2SC3646-S			
Q223	8-729-402-84	TRANSISTOR XN4601			
Q224	8-729-905-23	TRANSISTOR 2SA1576-R			
Q225	8-729-402-84	TRANSISTOR XN4601			
Q226	8-729-402-84	TRANSISTOR XN4601			
Q227	8-729-402-84	TRANSISTOR XN4601			
Q228	8-729-402-84	TRANSISTOR XN4601			
Q229	8-729-402-84	TRANSISTOR XN4601			
Q230	8-729-905-23	TRANSISTOR 2SA1576T-R			
Q260	8-729-905-35	TRANSISTOR 2SC4081T-R			
Q261	8-729-905-35	TRANSISTOR 2SC4081T-R			
		RESISTOR			
R189	1-216-864-11	METAL GLAZE	0	5%	1/16W
R195	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R199	1-216-820-11	METAL GLAZE	820	5%	1/16W
R222	1-216-864-11	METAL GLAZE	0	5%	1/16W
R223	1-216-864-11	METAL GLAZE	0	5%	1/16W
R225	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R226	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R227	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R228	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R229	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R230	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R231	1-216-005-00	METAL GLAZE	15	5%	1/10W
R232	1-216-005-00	METAL GLAZE	15	5%	1/10W
R233	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R234	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R235	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R236	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R237	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R238	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R239	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R241	1-216-820-11	METAL GLAZE	820	5%	1/16W
R242	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R243	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R245	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R246	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R247	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R248	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R249	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R250	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R251	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	
R252	1-216-689-11	METAL CHIP	39K	0.50%	1/10W	
R253	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R254	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R255	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R256	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R257	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R258	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W	
R259	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R260	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R261	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R262	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R263	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R265	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R266	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R267	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R268	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R269	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R270	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R272	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R273	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R274	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R275	1-216-848-11	METAL GLAZE	180K	5%	1/16W	
R276	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R278	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R279	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R281	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R282	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R283	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R284	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R285	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R286	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R287	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R288	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R289	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W	
R290	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R291	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R292	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R293	1-216-838-11	METAL GLAZE	27K	5%	1/16W	
R294	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R295	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R296	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R297	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R298	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R299	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R300	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R477	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R478	1-216-864-11	METAL GLAZE	0	5%	1/16W	

CRYSTAL

X221	1-577-119-11	OSCILLATOR, CRYSTAL (28.375MHz)
X261	1-567-733-11	VIBRATOR, CRYSTAL (17MHz)

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Ref.No	Part No.	Description	Remark

*A-7061-758-A VC-55P BOARD, COMPLETE (Ref. No. 4000 Series)

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A-7068-144-A MX-7P BOARD, COMPLETE (HIC)
A-7068-145-A CP-20P BOARD, COMPLETE (HIC)

1-629-189-11 FP-154 FLEXIBLE BOARD

CAPACITOR

C301	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C302	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C303	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C304	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C305	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C306	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C307	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C308	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C309	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C310	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C311	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C312	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C313	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C314	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C316	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C317	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C318	1-162-638-11	CERAMIC CHIP	1MF		16V
C319	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C320	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C330	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C331	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C332	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C333	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C334	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C335	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C336	1-135-072-21	TANTAL CHIP	0.22MF	20%	35V
C337	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C338	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C339	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C340	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C341	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C342	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C343	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C400	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C401	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C402	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C403	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C404	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C405	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C406	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C407	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C408	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C409	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C410	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C411	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C412	1-162-638-11	CERAMIC CHIP	1MF		16V
C413	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C414	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C415	1-124-566-11	ELECT	120MF	20%	6.3V
C416	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C417	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C418	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C419	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C420	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C421	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C422	1-162-953-11	CERAMIC CHIP	100PF	5%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C423	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C424	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C425	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C429	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C430	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C431	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C432	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C433	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C434	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C435	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C436	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C437	1-135-149-21	TANTAL CHIP	2.2MF	20%	10V
C438	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C439	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C440	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C446	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C447	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C448	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C449	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V

CONNECTOR

CN301	*1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P

DIODE

D312	8-719-404-32	DIODE MA141WA
D313	8-719-404-46	DIODE MA110
D314	8-719-100-03	DIODE 1S2836

FILTER

FL301	1-236-545-11	FILTER, LOW PASS (PAL)
FL303	1-236-192-11	FILTER, LOW PASS
FL305	1-415-635-21	DL (LC)
FL306	1-415-638-11	DL, LC

IC

IC301	8-759-031-88	IC MC68HC05N4-SC406660
IC302	8-759-106-23	IC UPD4066BG
IC303	8-759-100-95	IC UPC324G2
IC304	8-752-033-34	IC CXA1072R
IC305	8-759-946-00	IC MB88341PFV
IC306	8-759-101-12	IC UPC311G2

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q300	8-729-905-35	TRANSISTOR 2SC4081-R	
Q301	8-729-402-78	TRANSISTOR XN6401	
Q302	8-729-905-35	TRANSISTOR 2SC4081-R	
Q303	8-729-905-35	TRANSISTOR 2SC4081-R	
Q304	8-729-905-35	TRANSISTOR 2SC4081-R	
Q305	8-729-905-35	TRANSISTOR 2SC4081-R	
Q306	8-729-905-23	TRANSISTOR 2SA1576-R	
Q307	8-729-905-35	TRANSISTOR 2SC4081-R	
Q308	8-729-905-35	TRANSISTOR 2SC408-1R	
Q321	8-729-905-XX	TRANSISTOR DTC114TU	
Q322	8-729-403-10	TRANSISTOR XN6215-TX	
Q323	8-729-403-07	TRANSISTOR XN1213-TX	
Q324	8-729-905-35	TRANSISTOR 2SC4081-R	
Q325	8-729-905-35	TRANSISTOR 2SC4081-R	
Q326	8-729-403-10	TRANSISTOR XN6215	
Q327	8-729-402-78	TRANSISTOR XN6401	
Q351	8-729-905-23	TRANSISTOR 2SA1576-R	
Q352	8-729-905-23	TRANSISTOR 2SA1576-R	
Q354	8-729-905-35	TRANSISTOR 2SC4081-R	
Q355	8-729-402-84	TRANSISTOR XN4601	
Q356	8-729-403-10	TRANSISTOR XN6215	
Q358	8-729-905-35	TRANSISTOR 2SC4081-R	
Q359	8-729-905-35	TRANSISTOR 2SC4081-R	
Q360	8-729-905-35	TRANSISTOR 2SC4081-R	
Q361	8-729-402-84	TRANSISTOR XN4601	

RESISTOR

Ref.No	Part No.	Description			Remark
R301	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R302	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R303	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R304	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R305	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R306	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R307	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R308	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R309	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R310	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R311	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R312	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R313	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R314	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R315	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R316	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R317	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R319	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R320	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R321	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R322	1-216-864-11	METAL GLAZE	0	5%	1/16W
R323	1-216-864-11	METAL GLAZE	0	5%	1/16W
R324	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R325	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R326	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R328	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R330	1-216-864-11	METAL GLAZE	0	5%	1/16W
R332	1-216-864-11	METAL GLAZE	0	5%	1/16W
R333	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R334	1-216-818-11	METAL GLAZE	560	5%	1/16W
R335	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R336	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R337	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R338	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R339	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R340	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R341	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R342	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R343	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R344	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R345	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R346	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R347	1-216-864-11	METAL GLAZE	0	5%	1/16W
R350	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R351	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R352	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R353	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R354	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R356	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R357	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R358	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R359	1-216-864-11	METAL GLAZE	0	5%	1/16W
R360	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R361	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R362	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R363	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R364	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R365	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R366	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R367	1-216-833-11	METAL GLAZE	10K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R368	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R369	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R370	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R371	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R372	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R373	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R374	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R375	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R376	1-216-864-11	METAL GLAZE	0	5%	1/16W
R381	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R382	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R383	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R384	1-216-677-11	METAL CHIP	12K	0.50%	1/10W
R385	1-216-816-11	METAL GLAZE	390	5%	1/16W
R386	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R387	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R388	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R389	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R390	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R392	1-216-864-11	METAL GLAZE	0	5%	1/16W
R393	1-216-864-11	METAL GLAZE	0	5%	1/16W
R394	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R395	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R396	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R397	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R398	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R399	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R404	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R405	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R406	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R407	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R408	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R409	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R410	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R411	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R412	1-216-864-11	METAL GLAZE	0	5%	1/16W
R413	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R414	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R415	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R416	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R417	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R418	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R419	1-216-813-11	METAL GLAZE	220	5%	1/16W
R420	1-216-813-11	METAL GLAZE	220	5%	1/16W
R421	1-216-813-11	METAL GLAZE	220	5%	1/16W
R422	1-216-813-11	METAL GLAZE	220	5%	1/16W
R423	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R424	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R425	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R426	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R427	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R428	1-216-813-11	METAL GLAZE	220	5%	1/16W
R429	1-216-813-11	METAL GLAZE	220	5%	1/16W
R430	1-216-813-11	METAL GLAZE	220	5%	1/16W
R431	1-216-813-11	METAL GLAZE	220	5%	1/16W
R432	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R433	1-216-813-11	METAL GLAZE	220	5%	1/16W
R434	1-216-813-11	METAL GLAZE	220	5%	1/16W
R435	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R436	1-216-813-11	METAL GLAZE	220	5%	1/16W
R440	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R441	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R442	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R443	1-216-818-11	METAL GLAZE	560	5%	1/16W
R444	1-216-837-11	METAL GLAZE	22K	5%	1/16W

Ref.No	Part No.	Description			Remark
R445	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R446	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R447	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R448	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R449	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R450	1-216-841-11	METAL GLAZE	47K	5%	1/16W

TESTPOINT

TP301	*1-535-622-11	PIN, TERMINAL
TP302	*1-535-622-11	PIN, TERMINAL

CRYSTAL

X301	1-577-118-11	VIBRATOR, LITHIUM NIOBATE (4MHz)

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*A-7061-759-B AF-47P BOARD, COMPLETE (Ref. No. 5000 Series)

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1-629-190-11 FP-155 FLEXIBLE BOARD

CAPACITOR

C451	1-162-638-11	CERAMIC CHIP	1MF		16V
C452	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C453	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C454	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C455	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C456	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C457	1-135-180-21	TANTAL CHIP	3.3MF	20%	6.3V
C458	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C459	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C460	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C461	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C462	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C463	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C464	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C465	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C466	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C467	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C470	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C471	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C472	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C473	1-135-145-11	TANTAL CHIP	0.47MF	20%	25V
C474	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C475	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C477	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C478	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C479	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C480	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C481	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C482	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C483	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C484	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C485	1-135-145-11	TANTAL CHIP	0.47MF	20%	25V
C487	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C490	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C491	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C492	1-135-177-21	TANTAL CHIP	1MF	20%	20V
C493	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C494	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C495	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C496	1-126-395-11	ELECT CHIP	22MF	20%	16V
C498	1-164-156-11	CERAMIC CHIP	0.1MF		25V

When indicating parts by reference number, please include the board name.

AF-47P

CONNECTOR

Ref.No	Part No.	Description	Remark
CN451	1-566-536-11	CONNECTOR, FPC (ZIF) 20P	
CN452	*1-565-542-11	PIN, CONNECTOR (PC BOARD) 3P	
CN453	*1-565-542-21	PIN, CONNECTOR (PC BOARD) 3P	
CN454	*1-563-582-11	CONNECTOR, FLEXIBLE 5P	
CN455	*1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P	
CN456	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P	

DIODE

Ref.No	Part No.	Description	Remark
D451	8-719-404-46	DIODE MA110	
D454	8-719-404-46	DIODE MA110	
D455	8-719-404-32	DIODE MA141WA	

FILTER

Ref.No	Part No.	Description	Remark
FL451	1-236-209-11	FILTER, LOW PASS	

IC

Ref.No	Part No.	Description	Remark
IC451	8-752-326-18	IC CXD1204R	
IC452	8-759-035-24	IC MC68HC805C4FU	
IC453	8-759-971-93	IC MSM6219GS-VK	
IC454	8-759-946-00	IC MB88341PFV	
IC455	8-759-100-95	IC UPC324G2	
IC456	8-759-937-56	IC S-8054ALB	
IC457	8-759-103-25	IC UPD4053BG	
IC458	8-759-983-70	IC LM358PS	
IC459	8-759-030-73	IC SC14S66FEL	

COIL

Ref.No	Part No.	Description	Remark
L451	1-410-381-11	INDUCTOR CHIP 10UH	
L452	1-410-655-31	INDUCTOR CHIP 120UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q451	8-729-403-10	TRANSISTOR XN6215	
Q452	8-729-905-35	TRANSISTOR 2SC4081-R	
Q453	8-729-905-35	TRANSISTOR 2SC4081-R	
Q454	8-729-905-35	TRANSISTOR 2SC4081-R	
Q455	8-729-402-19	TRANSISTOR XN6501	
Q456	8-729-402-84	TRANSISTOR XN4601	
Q459	8-729-905-23	TRANSISTOR 2SA1576-R	
Q463	8-729-905-35	TRANSISTOR 2SC4081-R	
Q464	8-729-905-35	TRANSISTOR 2SC4081-R	
Q468	8-729-905-23	TRANSISTOR 2SA1576-R	
Q469	8-729-402-84	TRANSISTOR XN4601	

RESISTOR

Ref.No	Part No.	Description			Remark
R453	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R454	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R455	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R456	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R458	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R459	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R460	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R461	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R462	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R463	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R464	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R465	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R466	1-216-819-11	METAL GLAZE	680	5%	1/16W
R467	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R468	1-216-864-11	METAL GLAZE	0	5%	1/16W
R469	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R470	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R471	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R472	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R473	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R474	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R480	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R481	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R482	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R483	1-216-685-11	METAL CHIP	27K	0.50%	1/10W
R484	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R485	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R488	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R489	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R490	1-216-864-11	METAL GLAZE	0	5%	1/16W
R491	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R492	1-216-864-11	METAL GLAZE	0	5%	1/16W
R494	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R495	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R496	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R497	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R498	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R499	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R500	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R501	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R502	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R503	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R504	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R505	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R506	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R507	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R508	1-216-864-11	METAL GLAZE	0	5%	1/16W
R509	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R510	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R512	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R513	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R514	1-216-854-11	METAL GLAZE	560K	5%	1/16W
R515	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R517	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R518	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R519	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R520	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R521	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R522	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R523	1-216-818-11	METAL GLAZE	560	5%	1/16W
R524	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R525	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R526	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R527	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R528	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R529	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R531	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R532	1-216-144-00	METAL GLAZE	5.6	5%	1/8W
R533	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R534	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R537	1-216-813-11	METAL GLAZE	220	5%	1/16W
R538	1-216-813-11	METAL GLAZE	220	5%	1/16W
R540	1-216-813-11	METAL GLAZE	220	5%	1/16W
R541	1-216-820-11	METAL GLAZE	820	5%	1/16W
R542	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R543	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R544	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R545	1-216-818-11	METAL GLAZE	560	5%	1/16W
R546	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R547	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R548	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R549	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-7061-760-A	DM-23P BOARD, COMPLETE (Ref. No. 2000 Series)			

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CAPACITOR

C550	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C553	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C554	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C555	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C556	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C557	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C558	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C559	1-124-779-00	ELECT CHIP	10MF	20%	16V
C560	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C562	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C563	1-162-637-11	CERAMIC CHIP	0.47MF		16V
C564	1-124-767-00	ELECT	2.2MF	20%	50V
C565	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C566	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C567	1-135-155-21	TANTAL. CHIP	4.7MF	20%	16V
C568	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C569	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C570	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V

CONNECTOR

CN550	1-506-467-11	PIN, CONNECTOR 2P
CN551	*1-565-542-11	PIN, CONNECTOR (PC BOARD) 3P
CN552	1-563-585-11	CONNECTOR, FLEXIBLE 8P
CN553	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P
CN554	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P

DIODE

D550	8-719-404-46	DIODE MA110

IC

IC551	8-759-100-94	IC UPC358G2
IC552	8-759-981-82	IC NJM3414M
IC553	8-759-500-11	IC MM1036XFF
IC554	8-759-030-35	IC MPC1725MR

COIL

L551	1-410-381-11	INDUCTOR CHIP 10UH

TRANSISTOR

Q550	8-729-402-84	TRANSISTOR XN4601
Q551	8-729-805-25	TRANSISTOR 2SB1121
Q552	8-729-905-35	TRANSISTOR 2SC4081-R
Q555	8-729-905-35	TRANSISTOR 2SC4081-R
Q556	8-729-905-23	TRANSISTOR 2SA1576-R
Q557	8-729-907-00	TRANSISTOR DTC114EU
Q561	8-729-901-03	TRANSISTOR DTC144WK
Q562	8-729-402-78	TRANSISTOR XN6401
Q563	8-729-402-78	TRANSISTOR XN6401
Q564	8-729-402-42	TRANSISTOR UN5213
Q568	8-729-402-84	TRANSISTOR XN4601

RESISTOR

Ref.No	Part No.	Description			Remark
R550	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R551	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R552	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R553	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R554	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R555	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R556	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R569	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R570	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R571	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R572	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R573	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R574	1-216-144-00	METAL GLAZE	5.6	5%	1/8W
R575	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R576	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R577	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R578	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R579	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R580	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R581	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R582	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R583	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R584	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R585	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R587	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R588	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R592	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R594	1-216-864-11	METAL GLAZE	0	5%	1/16W
R595	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R596	1-216-813-11	METAL GLAZE	220	5%	1/16W
R597	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W
R598	1-216-864-11	METAL GLAZE	0	5%	1/16W
R601	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R604	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R605	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R606	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R607	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R608	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R609	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W

VARIABLE RESISTOR

RV551	1-230-875-21	RES, ADJ, METAL GLAZE 220K

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	*A-7062-110-A	FD-14P BOARD, COMPLETE (Ref. No. 1000 Series)

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	*3-732-796-01	HOLDER, LCD

CAPACITOR

C101	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C103	1-126-151-11	ELECT	4.7MF	20%	16V
C104	1-135-149-21	TANTAL. CHIP	2.2MF	20%	10V
C105	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C106	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C107	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C109	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C110	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C111	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C112	1-162-638-11	CERAMIC CHIP	1MF		16V
C113	1-162-638-11	CERAMIC CHIP	1MF		16V
C115	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C116	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C117	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C118	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C119	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C161	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C164	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C165	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C166	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V

When indicating parts by reference number, please include the board name.

FD-14P

Ref.No	Part No.	Description	Remark
C167	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C169	1-163-091-00	CERAMIC CHIP 8PF 0.25PF 50V	
C170	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C171	1-135-157-21	TANTAL CHIP 10MF 20% 6.3V	
C172	1-135-145-11	TANTAL CHIP 0.47MF 20% 35V	
C173	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C174	1-135-157-21	TANTAL CHIP 10MF 20% 6.3V	
C175	1-135-149-21	TANTAL CHIP 2.2MF 20% 10V	
C176	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C180	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C181	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C871	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C872	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C873	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C874	1-124-472-11	ELECT 470MF 20% 6.3V	
C875	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C906	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C907	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C908	1-135-158-21	TANTAL CHIP 15MF 20% 4V	
C909	1-135-181-21	TANTAL CHIP 4.7MF 20% 6.3V	
C910	1-135-181-21	TANTAL CHIP 4.7MF 20% 6.3V	
C912	1-135-162-21	TANTAL CHIP 33MF 20% 6.3V	
C913	1-135-162-21	TANTAL CHIP 33MF 20% 6.3V	
C914	1-124-576-11	ELECT 220MF 20% 4V	
C915	1-135-157-21	TANTAL CHIP 10MF 20% 6.3V	
C916	1-124-576-11	ELECT 220MF 20% 4V	
C917	1-135-157-21	TANTAL CHIP 10MF 20% 6.3V	
C918	1-135-181-21	TANTAL CHIP 4.7MF 20% 6.3V	
C919	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C920	1-135-158-21	TANTAL CHIP 15MF 20% 4V	
C921	1-135-158-21	TANTAL CHIP 15MF 20% 4V	
C923	1-135-181-21	TANTAL CHIP 4.7MF 20% 6.3V	
C924	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C925	1-163-034-00	CERAMIC CHIP 0.033MF 50V	
C926	1-135-158-21	TANTAL CHIP 15MF 20% 4V	
C927	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C928	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C929	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C930	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C933	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C935	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C936	1-135-162-21	TANTAL CHIP 33MF 20% 6.3V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	1-566-527-11	CONNECTOR, FPC (ZIF) 11P	
CN102	1-506-467-11	PIN, CONNECTOR 2P	
CN161	1-568-123-11	CONNECTOR,FPC(SMT TYPE ZIF)18P	
CN871	1-566-757-11	PIN, CONNECTOR (PC BOARD) 2P	
CN903	*1-563-582-11	CONNECTOR, FLEXIBLE 5P	

TRIMMER

Ref.No	Part No.	Description	Remark
CT101	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	
CT161	1-141-331-11	CAP, VAR, TRIMMER (CHIP)	

DIODE

Ref.No	Part No.	Description	Remark
D103	8-719-404-46	DIODE MA110	
D104	8-719-404-46	DIODE MA110	
D105	8-719-404-46	DIODE MA110	
D107	8-719-938-72	DIODE SB01-05CP-TA	
D108	8-719-940-45	DIODE DWA010	
D161	8-713-300-88	DIODE 1T33C	
D871	8-719-404-46	DIODE MA110	
D872	8-719-106-08	DIODE RD6.2M-B2	
D909	8-719-106-43	DIODE RD9.1M-B1	
D910	8-719-106-43	DIODE RD9.1M-B1	
D913	8-719-106-43	DIODE RD9.1M-B1	
D914	8-719-106-43	DIODE RD9.1M-B1	
D916	8-719-106-43	DIODE RD9.1M-B1	
D917	8-719-106-43	DIODE RD9.1M-B1	
D918	8-719-106-43	DIODE RD9.1M-B1	
D920	8-719-404-40	DIODE MA121	
D922	8-719-941-09	DIODE DAP202U	
D923	8-719-941-86	DIODE DAN202U	

IC

Ref.No	Part No.	Description	Remark
IC101	8-759-148-99	IC UPD75316GF-042-3B9	
IC102	8-759-937-54	IC S-81250HG-RD-S	
IC103	8-759-946-03	IC S-8054ALR-LN-S	
IC161	8-759-983-52	IC MB87484	
IC871	8-759-205-78	IC TC504013BF	
IC901	8-752-009-51	IC CX20095A	
IC902	8-759-710-09	IC NJM2233AM	

COIL

Ref.No	Part No.	Description	Remark
L101	1-410-192-51	INDUCTOR CHIP 1UH	
L161	1-410-384-31	INDUCTOR CHIP 18UH	
L162	1-410-192-51	INDUCTOR CHIP 1UH	
L163	1-410-377-31	INDUCTOR CHIP 4.7UH	
L164	1-410-192-51	INDUCTOR CHIP 1UH	
L165	1-410-192-51	INDUCTOR CHIP 1UH	
L903	1-412-058-11	INDUCTOR CHIP 10UH	
L907	1-410-369-11	INDUCTOR CHIP 1UH	
L908	1-410-388-21	INDUCTOR CHIP 39UH	

INDICATOR TUBE

Ref.No	Part No.	Description	Remark
ND101	1-808-621-21	DISPLAY PANEL, LIQUID CRYSTAL	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q105	8-729-902-96	TRANSISTOR FMS1	
Q106	8-729-905-35	TRANSISTOR 2SC4081-R	
Q107	8-729-903-82	TRANSISTOR FMW2	
Q108	8-729-805-25	TRANSISTOR 2SB1121	
Q109	8-729-920-39	TRANSISTOR IMT1US	
Q110	8-729-904-20	TRANSISTOR FMA2	
Q112	8-729-602-36	TRANSISTOR 2SA1602	
Q113	8-729-905-15	TRANSISTOR DTC144WU	
Q114	8-729-109-44	TRANSISTOR 2SK94	
Q115	8-729-109-44	TRANSISTOR 2SK94	
Q116	8-729-902-96	TRANSISTOR FMS1	
Q117	8-729-902-96	TRANSISTOR FMS1	
Q118	8-729-907-26	TRANSISTOR IMX1	
Q119	8-729-920-39	TRANSISTOR IMT1US	
Q120	8-729-602-40	TRANSISTOR 2SA1602	
Q121	8-729-602-21	TRANSISTOR 2SC4154	
Q122	8-729-905-96	TRANSISTOR DTA114TU	
Q161	8-729-402-42	TRANSISTOR UN5213	
Q871	8-729-920-XX	TRANSISTOR DTA114EU	
Q872	8-729-905-12	TRANSISTOR DTA144EU	
Q873	8-729-905-12	TRANSISTOR DTA144EU	
Q874	8-729-905-18	TRANSISTOR DTC144EU	
Q875	8-729-905-18	TRANSISTOR DTC144EU	
Q901	8-729-602-40	TRANSISTOR 2SA1602	
Q905	8-729-905-35	TRANSISTOR 2SC4081-R	
Q906	8-729-905-35	TRANSISTOR 2SC4081-R	
Q907	8-729-905-35	TRANSISTOR 2SC4081-R	
Q908	8-729-271-22	TRANSISTOR 2SC2712G	
Q909	8-729-905-35	TRANSISTOR 2SC4081-R	
Q910	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q911	8-729-905-18	TRANSISTOR DTC144EU	
Q914	8-729-104-26	TRANSISTOR 2SB804	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
Q919	8-729-602-40	TRANSISTOR 2SA1602			
Q922	8-729-905-35	TRANSISTOR 2SC4081-R			
Q923	8-729-905-35	TRANSISTOR 2SC4081-R			
Q930	8-729-602-40	TRANSISTOR 2SA1602			
Q931	8-729-602-40	TRANSISTOR 2SA1602			
Q932	8-729-905-15	TRANSISTOR DTC144WU			

RESISTOR

Ref.No	Part No.	Description			Remark
R101	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R102	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R103	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R104	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R105	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R106	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R107	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R108	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R109	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R110	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R111	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R112	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R113	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R114	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R115	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R116	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R117	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R118	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R119	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R120	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R121	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R122	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R123	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R124	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R125	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R126	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R127	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R128	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R129	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R130	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R131	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R132	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R133	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R134	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R135	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R136	1-216-138-00	METAL GLAZE	3.3	5%	1/8W
R137	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R138	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R139	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R140	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R141	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R142	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R143	1-216-861-11	METAL GLAZE	2.2M	5%	1/16W
R144	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R145	1-216-809-11	METAL GLAZE	100	5%	1/16W
R146	1-216-854-11	METAL GLAZE	560K	5%	1/16W
R147	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R148	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R149	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R150	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R151	1-216-854-11	METAL GLAZE	560K	5%	1/16W
R152	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R153	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R154	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R155	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R156	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R157	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R158	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R159	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R160	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R161	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R162	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R163	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R164	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R165	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R166	1-216-817-11	METAL GLAZE	470	5%	1/16W
R168	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R169	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R170	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R171	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R172	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R173	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R175	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R177	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R178	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R179	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R180	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R181	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R183	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R184	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R185	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R186	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R187	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R188	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R189	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R190	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R191	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R192	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R194	1-216-817-11	METAL GLAZE	470	5%	1/16W
R195	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R196	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R197	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R198	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R199	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R291	1-216-817-11	METAL GLAZE	470	5%	1/16W
R292	1-216-817-11	METAL GLAZE	470	5%	1/16W
R293	1-216-817-11	METAL GLAZE	470	5%	1/16W
R871	1-216-035-00	METAL GLAZE	270	5%	1/10W
R872	1-216-035-00	METAL GLAZE	270	5%	1/10W
R873	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R874	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R875	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R876	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R877	1-216-296-00	METAL GLAZE	0	5%	1/8W
R901	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R902	1-216-817-11	METAL GLAZE	470	5%	1/16W
R905	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R906	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R907	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R908	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R915	1-216-807-11	METAL GLAZE	68	5%	1/16W
R916	1-216-807-11	METAL GLAZE	68	5%	1/16W
R923	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R924	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R925	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R926	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R927	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R928	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R929	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R930	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R931	1-216-816-11	METAL GLAZE	390	5%	1/16W
R932	1-216-821-11	METAL GLAZE	1K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R933	1-216-816-11	METAL GLAZE	390	5%	1/16W
R934	1-216-817-11	METAL GLAZE	470	5%	1/16W
R935	1-216-813-11	METAL GLAZE	220	5%	1/16W
R936	1-216-818-11	METAL GLAZE	560	5%	1/16W
R937	1-216-813-11	METAL GLAZE	220	5%	1/16W
R938	1-216-807-11	METAL GLAZE	68	5%	1/16W
R939	1-216-815-11	METAL GLAZE	330	5%	1/16W
R940	1-216-817-11	METAL GLAZE	470	5%	1/16W
R941	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R942	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R943	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R944	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R946	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R947	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R951	1-216-296-00	METAL GLAZE	0	5%	1/8W
R952	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R953	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R954	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R956	1-216-296-00	METAL GLAZE	0	5%	1/8W
R957	1-216-296-00	METAL GLAZE	0	5%	1/8W
R958	1-216-296-00	METAL GLAZE	0	5%	1/8W
R960	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R961	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R962	1-216-296-00	METAL GLAZE	0	5%	1/8W
R963	1-216-296-00	METAL GLAZE	0	5%	1/8W
R965	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R966	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R980	1-216-296-00	METAL GLAZE	0	5%	1/8W
R981	1-216-296-00	METAL GLAZE	0	5%	1/8W
R982	1-216-296-00	METAL GLAZE	0	5%	1/8W
R983	1-216-296-00	METAL GLAZE	0	5%	1/8W
R984	1-216-296-00	METAL GLAZE	0	5%	1/8W
R986	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R987	1-216-138-00	METAL GLAZE	3.3	5%	1/8W
R988	1-216-295-00	METAL GLAZE	0	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV101	1-237-776-11	RES, VAR, CARBON 10K (IRIS)
RV901	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV902	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV903	1-230-867-11	RES, ADJ, METAL GLAZE 1K

SWITCH

Ref.No	Part No.	Description
S106	1-571-787-11	SWITCH, TACTILE (COUNTER RESET)
S107	1-571-787-11	SWITCH, TACTILE (DATE)
S108	1-571-787-11	SWITCH, TACTILE (TIME)
S109	1-571-787-11	SWITCH, TACTILE (FOCUS)
S110	1-571-787-11	SWITCH, TACTILE (WHT BAL)
S111	1-571-787-11	SWITCH, TACTILE (SENS)
S112	1-571-787-11	SWITCH, TACTILE (SHUTTER SPEED)
S113	1-570-870-11	SWITCH, SLIDE (AUTO LOCK)
S114	1-571-787-11	SWITCH, TACTILE (PUSH AUTO)
S115	1-571-787-11	SWITCH, TACTILE (FADER)
S117	1-571-787-11	SWITCH, TACTILE(◺■◿)
S871	1-571-787-11	SWITCH, TACTILE
S872	1-553-977-00	SWITCH, SLIDE (T.C/COUNTER)

TESTPOINT

Ref.No	Part No.	Description
TP101	*1-535-622-11	PIN, TERMINAL
TP102	*1-535-622-11	PIN, TERMINAL
TP103	*1-535-622-11	PIN, TERMINAL
TP104	*1-535-622-11	PIN, TERMINAL
TP901	*1-535-622-11	PIN, TERMINAL
TP902	*1-535-622-11	PIN, TERMINAL

CRYSTAL

Ref.No	Part No.	Description
X101	1-577-291-21	VIBRATOR, CERAMIC (WITH (C)) (4.19MHz)
X102	1-527-997-00	VIBRATOR, CRYSTAL (32.76kHz)

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*A-7062-111-A MC-40P BOARD, COMPLETE (Ref. No. 2000 Series)

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CAPACITOR

Ref.No	Part No.	Description			Remark
C701	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C703	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C704	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C705	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C706	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C708	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C709	1-126-100-11	ELECT	10MF	20%	6.3V
C710	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C711	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C712	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C713	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C716	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C719	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C720	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C722	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN701	*1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P
CN702	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P
CN703	*1-565-875-11	PIN, CONNECTOR (PC BOARD) 3P

DIODE

Ref.No	Part No.	Description
D701	8-719-404-46	DIODE MA110
D703	8-719-105-91	DIODE RD5.6M-B2

JACK

Ref.No	Part No.	Description
J701	1-507-921-00	JACK (EXT MIC)
J702	1-563-454-11	JACK, MINIATURE (DC OUT)

COIL

Ref.No	Part No.	Description
L701	1-410-369-11	INDUCTOR CHIP 1UH
L702	1-410-369-11	INDUCTOR CHIP 1UH
L703	1-410-369-11	INDUCTOR CHIP 1UH
L704	1-410-192-51	INDUCTOR CHIP 1UH
L705	1-410-192-51	INDUCTOR CHIP 1UH
L706	1-410-192-51	INDUCTOR CHIP 1UH
L707	1-410-192-51	INDUCTOR CHIP 1UH

TRANSISTOR

Ref.No	Part No.	Description
Q701	8-729-905-23	TRANSISTOR 2SA1576-R
Q702	8-729-117-32	TRANSISTOR 2SC4177
Q703	8-729-905-35	TRANSISTOR 2SC4081-R
Q704	8-729-905-35	TRANSISTOR 2SC4081-R
Q705	8-729-905-23	TRANSISTOR 2SA1576-R
Q706	8-729-117-32	TRANSISTOR 2SC4177
Q707	8-729-905-35	TRANSISTOR 2SC4081-R

RESISTOR

Ref.No	Part No.	Description			Remark
R701	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R702	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R703	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R704	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R706	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R707	1-216-079-00	METAL GLAZE	18K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R708	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R709	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R710	1-216-035-00	METAL GLAZE	270	5%	1/10W
R711	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R712	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R713	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R714	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R715	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R716	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R717	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R718	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R719	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R720	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R721	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R722	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R723	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R726	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R727	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W

SWITCH

Ref.No	Part No.	Description
S701	1-554-123-00	SWITCH, SLIDE (BUILT IN MIC SELECT)

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*A-7062-110-A TC-11P BOARD, COMPLETE (Ref. No. 2000 Series)

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CAPACITOR

Ref.No	Part No.	Description			
C001	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C002	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C003	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C004	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C005	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C006	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C007	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C008	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C009	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C010	1-135-156-21	TANTAL CHIP	6.8MF	20%	6.3V
C011	1-135-156-21	TANTAL CHIP	6.8MF	20%	6.3V
C012	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C013	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C014	1-135-156-21	TANTAL CHIP	6.8MF	20%	6.3V
C015	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C016	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C018	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C101	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C102	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C103	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C104	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C105	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C106	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C107	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C108	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C109	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C110	1-163-105-00	CERAMIC CHIP	33PF	5%	50V

CONNECTOR

Ref.No	Part No.	Description
CN002	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P
CN003	1-566-543-31	CONNECTOR, FPC (NON ZIF) 11P
CN004	1-506-483-21	PIN, CONNECTOR 4P

DIODE

Ref.No	Part No.	Description
D001	8-719-100-03	DIODE 1S2836

IC

Ref.No	Part No.	Description
IC001	8-752-010-20	IC CX20102
IC002	8-759-209-57	IC TC4S69F
IC003	8-759-972-13	IC CF77309FR
IC004	8-759-145-61	IC CXP5086H-606Q
IC005	8-759-972-12	IC CF77305FT

COIL

Ref.No	Part No.	Description	
L001	1-410-381-11	INDUCTOR CHIP	10UH
L002	1-410-381-11	INDUCTOR CHIP	10UH
L003	1-410-658-31	INDUCTOR CHIP	220UH
L101	1-410-381-11	INDUCTOR CHIP	10UH
L102	1-410-381-11	INDUCTOR CHIP	10UH
L103	1-410-381-11	INDUCTOR CHIP	10UH

TRANSISTOR

Ref.No	Part No.	Description
Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-216-22	TRANSISTOR 2SA1162
Q003	8-729-100-66	TRANSISTOR 2SC1623
Q004	8-729-900-53	TRANSISTOR DTC114EK
Q005	8-729-100-66	TRANSISTOR 2SC1623

RESISTOR

Ref.No	Part No.	Description			Remark
R001	1-216-025-00	METAL GLAZE	100	5%	1/10W
R002	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R003	1-216-074-00	METAL GLAZE	11K	5%	1/10W
R004	1-216-041-00	METAL GLAZE	470	5%	1/10W
R005	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R006	1-216-041-00	METAL GLAZE	470	5%	1/10W
R007	1-216-041-00	METAL GLAZE	470	5%	1/10W
R008	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R009	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R010	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R011	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R012	1-216-045-00	METAL GLAZE	680	5%	1/10W
R013	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R014	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R015	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R016	1-216-041-00	METAL GLAZE	470	5%	1/10W
R017	1-216-043-00	METAL GLAZE	560	5%	1/10W
R018	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R019	1-216-041-00	METAL GLAZE	470	5%	1/10W
R020	1-216-295-00	METAL GLAZE	0	5%	1/10W
R021	1-216-041-00	METAL GLAZE	470	5%	1/10W
R023	1-216-045-00	METAL GLAZE	680	5%	1/10W
R024	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R025	1-216-045-00	METAL GLAZE	680	5%	1/10W
R026	1-216-074-00	METAL GLAZE	11K	5%	1/10W
R101	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R102	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R105	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R106	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R107	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R108	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R109	1-216-089-00	METAL GLAZE	47K	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV001	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K

CRYSTAL

Ref.No	Part No.	Description
X101	1-577-553-11	VIBRATOR, CRYSTAL (11.5MHz)
X102	1-567-964-21	OSCILLATOR, CHIP CERAMIC (5MHz)

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When indicating parts by reference number, please include the board name.

AT-8P

Ref.No	Part No.	Description			Remark
	*A-7062-116-A	AT-8P BOARD, COMPLETE (Ref. No. 3000 Series)			

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CAPACITOR

Ref.No	Part No.	Description			Remark
C310	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C311	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C312	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C313	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C314	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C315	1-162-638-11	CERAMIC CHIP	1MF		16V
C316	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C317	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C318	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C319	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C320	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C321	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C322	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C323	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C324	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C325	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C326	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C327	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C328	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C329	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C330	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C331	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C332	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C333	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C334	1-162-638-11	CERAMIC CHIP	1MF		16V
C335	1-162-638-11	CERAMIC CHIP	1MF		16V
C336	1-163-059-00	CERAMIC CHIP	0.01MF	10%	50V
C340	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C341	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C342	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C343	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C344	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C350	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C351	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C352	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C353	1-126-193-11	ELECT CHIP	1MF	20%	50V
C355	1-126-207-11	ELECT CHIP	33MF	20%	4V
C356	1-124-584-00	ELECT	100MF	20%	10V
C358	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C359	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C360	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C361	1-124-779-00	ELECT CHIP	10MF	20%	16V
C362	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C363	1-124-779-00	ELECT CHIP	10MF	20%	16V
C364	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C365	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C366	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C367	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C368	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C369	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C370	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C371	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C372	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C373	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C374	1-124-779-00	ELECT CHIP	10MF	20%	16V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN310	1-568-113-11	CONNECTOR, BOARD TO BOARD 22P	
CN311	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P	

FILTER

Ref.No	Part No.	Description	Remark
FL350	1-236-145-11	FILTER, BAND PASS	

IC

Ref.No	Part No.	Description	Remark
IC310	8-759-209-53	IC CXA1204Q	
IC350	8-741-150-51	IC SBX1505	

COIL

Ref.No	Part No.	Description		Remark
L310	1-412-058-11	INDUCTOR CHIP	10UH	
L311	1-408-795-21	INDUCTOR CHIP	330UH	
L312	1-412-058-11	INDUCTOR CHIP	10UH	
L350	1-410-389-31	INDUCTOR CHIP	47UH	
L351	1-410-192-51	INDUCTOR CHIP	1UH	
L352	1-410-192-51	INDUCTOR CHIP	1UH	
L353	1-410-192-51	INDUCTOR CHIP	1UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q310	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q311	8-729-905-35	TRANSISTOR 2SC4081-R	
Q312	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q313	8-729-905-35	TRANSISTOR 2SC4081-R	
Q314	8-729-905-35	TRANSISTOR 2SC4081-R	
Q315	8-729-905-12	TRANSISTOR DTA144EU	
Q350	8-729-907-39	TRANSISTOR IMD2	
Q351	8-729-907-26	TRANSISTOR IMX1	
Q352	8-729-905-35	TRANSISTOR 2SC4081-R	
Q353	8-729-905-35	TRANSISTOR 2SC4081-R	
Q354	8-729-905-35	TRANSISTOR 2SC4081-R	
Q355	8-729-117-16	TRANSISTOR 2SA1611-M6	
Q356	8-729-905-35	TRANSISTOR 2SC4081-R	
Q357	8-729-905-12	TRANSISTOR DTA144EU	
Q358	8-729-402-42	TRANSISTOR UN5213	
Q359	8-729-403-35	TRANSISTOR UN5113	
Q360	8-729-905-35	TRANSISTOR 2SC4081-R	

RESISTOR

Ref.No	Part No.	Description				Remark
R310	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R311	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R312	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R313	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R314	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R315	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R316	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R317	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R318	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R322	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R323	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R324	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R325	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R326	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R327	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R328	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R329	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R330	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R331	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R332	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R333	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R335	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R336	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R339	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R340	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R341	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R342	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R343	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R350	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R351	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R352	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R353	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R354	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R355	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R356	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R357	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R358	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R359	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R360	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R361	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R362	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R363	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R364	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R365	1-216-009-00	METAL GLAZE	22	5%	1/10W
R366	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R367	1-216-041-00	METAL GLAZE	470	5%	1/10W
R368	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R369	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R370	1-216-025-00	METAL GLAZE	100	5%	1/10W
R371	1-216-045-00	METAL GLAZE	680	5%	1/10W
R372	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R373	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R374	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R375	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R376	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R380	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R381	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W

VARIABLE RESISTOR

RV310	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K
RV350	1-230-870-11	RES, ADJ, METAL GRAZE 10K

CRYSTAL

X310	1-567-827-11	VIBRATOR, CRYSTAL (5.86MHz)

* * *

*A-7070-924-A CC-18P BOARD, COMPLETE (Ref. No. 3000 Series)
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CONNECTOR

CN001	1-566-529-11	CONNECTOR, FPC (ZIF) 13P
CN002	1-566-527-11	CONNECTOR, FPC (ZIF) 11P
CN003	1-566-530-11	CONNECTOR, FPC (ZIF) 14P

DIODE

D001	8-719-404-40	DIODE MA121-TW
D001	8-719-951-22	DIODE IMN10T109
D002	8-719-404-40	DIODE MA121-TW
D002	8-719-951-22	DIODE IMN10T109
D003	8-719-400-18	DIODE 1S2837-T1
D003	8-719-104-31	DIODE MA151WK-TX

* * *

*1-629-173-21 FU-66P BOARD (Ref. No. 3000 Series)
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CAPACITOR

C060	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V

Ref.No	Part No.	Description	Remark

CONNECTOR

CN061	1-568-112-11	CONNECTOR, BOARD TO BOARD 6P

COIL

L060	1-410-337-11	INDUCTOR	1UH
L061	1-410-337-11	INDUCTOR	1UH
L062	1-410-337-11	INDUCTOR	1UH

IC LINK

PS060	⚠1-532-841-21	LINK, IC (PRF1600 1.6A)
PS061	⚠1-532-841-21	LINK, IC (PRF1600 1.6A)
PS062	⚠1-532-841-21	LINK, IC (PRF1600 1.6A)

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*A-7070-926-A CD-13P BOARD, COMPLETE (Ref. No. 4000 Series)
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*3-734-418-01 PROTECTOR, HIC

CAPACITOR

C200	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C201	1-135-146-21	TANTAL. CHIP	0.68MF	20%	25V
C202	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C203	1-126-200-11	ELECT CHIP	10MF	20%	35V
C204	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C205	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C206	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C207	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C208	1-135-159-21	************	10MF	20%	20V
C209	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C210	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C211	1-162-638-11	CERAMIC CHIP	1MF		16V
C212	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C213	1-135-162-21	TANTAL. CHIP	33MF	20%	6.3V
C214	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C215	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V

CONNECTOR

CN201	1-566-516-11	CONNECTOR, FPC (ZIF) 16P

DIODE

D200	8-719-404-32	DIODE MA141WA
D201	8-719-404-46	DIODE MA110

IC

IC200	✻8-750-011-12	IC IU024AN-10C (CCD IMAGER)

TRANSISTOR

Q200	8-729-421-23	TRANSISTOR XN1501
Q201	8-729-905-35	TRANSISTOR 2SC4081-R
Q202	8-729-105-53	TRANSISTOR 2SK300
Q203	8-729-402-84	TRANSISTOR XN4601

RESISTOR

R200	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R201	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R202	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R203	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R204	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R205	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R206	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R207	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R208	1-216-039-00	METAL GLAZE	390	5%	1/10W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R209	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R210	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R211	1-216-025-00	METAL GLAZE	100	5%	1/10W
R212	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R213	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R215	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R216	1-216-089-00	METAL GLAZE	47K	5%	1/10W

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*1-629-170-21 PJ-21P BOARD (Ref. No. 1000 Series)

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JACK

Ref.No	Part No.	Description
J903	1-566-850-31	CONNECTOR, (S) TERMINAL 4P (S VIDEO OUT)
J904	1-537-142-11	TERMINAL BOARD (VIDEO/AUDIO/RF DC OUT)

SWITCH

Ref.No	Part No.	Description
S901	1-570-870-11	SWITCH, SLIDE (SP/LP)
S902	1-570-870-11	SWITCH, SLIDE (Hi 8)
S903	1-571-787-11	SWITCH, TACTILE (SLOW −)
S904	1-571-787-11	SWITCH, TACTILE (SLOW +)

TESTPOINT

Ref.No	Part No.	Description
TP903	*1-535-622-11	PIN, TERMINAL
TP904	*1-535-622-11	PIN, TERMINAL

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*1-629-175-21 LI-8P BOARD (Ref. No. 8000 Series)

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1-550-104-32 HOLDER, BATTERY

CAPACITOR

Ref.No	Part No.	Description		Remark
C086	1-164-222-11	CERAMIC CHIP	0.22MF	25V
C087	1-164-222-11	CERAMIC CHIP	0.22MF	25V

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*1-629-172-21 SW-94P BOARD (Ref. No. 1000 Series)

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CONNECTOR

Ref.No	Part No.	Description
CN071	1-566-538-11	CONNECTOR, FPC (NON ZIF) 6P
CN072	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P

DIODE

Ref.No	Part No.	Description
D073	8-719-100-05	DIODE 1S2837

SWITCH

Ref.No	Part No.	Description
S070	1-570-689-11	SWITCH, KEY BOARD (REC START/STOP)
S071	1-553-977-00	SWITCH, SLIDE (STANDBY)

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*1-629-174-21 JC-3P BOARD (Ref. No. 5000 Series)

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CAPACITOR

Ref.No	Part No.	Description			Remark
C070	1-124-570-11	ELECT	220MF	20%	16V
C071	1-124-570-11	ELECT	220MF	20%	16V
C072	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN073	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P
CN074	*1-566-758-11	PIN, CONNECTOR (PC BOARD) 3P

DIODE

Ref.No	Part No.	Description
D071	8-719-106-71	DIODE RD12M-B2
D072	8-719-106-71	DIODE RD12M-B2
D074	8-719-100-05	DIODE 1S2837
J070	1-565-276-11	JACK, ULTRA SMALL 1P (REMOTE)
J071	1-507-921-00	JACK (EARPHONE)

COIL

Ref.No	Part No.	Description	
L075	1-410-369-11	INDUCTOR CHIP	1UH
L076	1-410-369-11	INDUCTOR CHIP	1UH

RESISTOR

Ref.No	Part No.	Description			Remark
R070	1-216-296-00	METAL GLAZE	0	5%	1/8W
R071	1-216-296-00	METAL GLAZE	0	5%	1/8W

SWITCH

Ref.No	Part No.	Description
S072	1-554-088-00	SWITCH, KEY BOARD (REC START/START)

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*A-7071-170-A MC-38P BOARD, COMPLETE (Ref. No. 9000 Series)

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CAPACITOR

Ref.No	Part No.	Description			Remark
C201	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C202	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C203	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C204	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C205	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C206	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C207	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C208	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C209	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C210	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C211	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C212	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C213	1-126-153-11	ELECT	22MF	20%	6.3V
C214	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C218	1-126-153-11	ELECT	22MF	20%	6.3V
C231	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C232	1-135-149-21	TANTAL CHIP	2.2MF	20%	6.3V
C233	1-135-157-21	TANTAL CHIP	10MF	20%	6.3V
C234	1-163-038-00	CERAMIC CHIP	0.1MF		25V

CONNECTOR

Ref.No	Part No.	Description
CN201	1-566-757-11	PIN, CONNECTOR (PC BOARD) 2P
CN202	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P
CN203	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P
CN204	1-506-468-11	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D201	8-719-108-01	DIODE 1SS153
D241	8-719-108-01	DIODE 1SS153

IC

Ref.No	Part No.	Description
IC201	8-759-603-27	IC M5201FP
IC231	8-759-004-45	IC MC1445L

When indicating parts by reference number, please include the board name.

TRANSISTOR

Ref.No	Part No.	Description				Remark
Q201	8-729-100-66	TRANSISTOR 2SC1623				
Q202	8-729-100-66	TRANSISTOR 2SC1623				
Q203	8-729-202-38	TRANSISTOR 2SC3326N				
Q204	8-729-901-06	TRANSISTOR DTA144EK				
Q231	8-729-901-01	TRANSISTOR DTC144EK				
Q232	8-729-901-01	TRANSISTOR DTC144EK				

RESISTOR

Ref.No	Part No.	Description				Remark
R201	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R202	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R203	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R205	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R206	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R207	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R208	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R209	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R210	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R211	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R213	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R215	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R216	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R217	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R218	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R219	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R226	1-216-032-00	METAL GLAZE	200	5%	1/10W	
R227	1-216-032-00	METAL GLAZE	200	5%	1/10W	
R231	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R232	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R233	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R234	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R235	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R236	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R237	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R238	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R239	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R241	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	

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*1-631-779-21 FK-11P BOARD (Ref. No. 6000 Series)
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DIODE

Ref.No	Part No.	Description	Remark
D082	8-719-404-40	DIODE MA121	

SWITCH

Ref.No	Part No.	Description	Remark
S080	1-571-787-11	SWITCH, TACTILE (DATA SCREEN)	
S084	1-571-787-11	SWITCH, TACTILE (FRAME)	
S085	1-571-787-11	SWITCH, TACTILE (SLOW)	
S086	1-570-870-11	SWITCH, SLIDE (EDIT)	
S087	1-571-102-11	SWITCH, SLIDE (EJECT)	
S088	1-571-787-11	SWITCH, TACTILE (REW)	
S089	1-571-787-11	SWITCH, TACTILE (PLAY)	
S090	1-571-787-11	SWITCH, TACTILE (FF)	
S091	1-571-787-11	SWITCH, TACTILE (STOP)	
S092	1-571-787-11	SWITCH, TACTILE (PAUSE)	
S095	1-571-101-12	SWITCH, SLIDE (POWER)	

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*1-631-780-21 EF-4P BOARD (Ref. No. 9000 Series)
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CONNECTOR

Ref.No	Part No.	Description	Remark
CN801	*1-563-608-11	CONNECTOR, FLEXIBLE 5P	
CN802	1-562-183-00	SOCKET 8P	

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*1-631-782-21 FC-26P BOARD (Ref. No. 7000 Series)
****

CONNECTOR

Ref.No	Part No.	Description	Remark
CN095	1-566-546-11	CONNECTOR, FPC (NON ZIF) 14P	
CN096	1-565-528-11	PIN, CONNECTOR (PC BOARD) 3P	

DIODE

Ref.No	Part No.	Description	Remark
D096	8-719-404-40	DIODE MA121-TX	

SWITCH

Ref.No	Part No.	Description	Remark
S096	1-571-787-11	SWITCH, TACTILE (EDIT SEARCH +)	
S097	1-571-787-11	SWITCH, TACTILE (EDIT SEARCH −)	

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*A-7060-103-A VF-4 BOARD, COMPLETE (Ref. No. 10000 Series)
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Ref.No	Part No.	Description	Remark
	1-526-793-21	SOCKET ASSY, CRT	
	3-662-075-00	COVER, CONTROL	

CAPACITOR

Ref.No	Part No.	Description				Remark
C001	1-124-229-00	ELECT	33MF	20%	10V	
C002	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V	
C003	1-124-438-00	ELECT	1MF	20%	50V	
C004	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C005	1-126-157-11	ELECT	10MF	20%	16V	
C006	1-163-131-00	CERAMIC CHIP	390PF	10%	50V	
C007	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V	
C008	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V	
C009	1-126-157-11	ELECT	10MF	20%	16V	
C010	1-126-157-11	ELECT	10MF	20%	16V	
C011	1-131-361-00	TANTALUM	2.2MF	10%	20V	
C012	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V	
C013	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C014	1-124-604-00	ELECT	330MF	20%	10V	
C015	1-124-471-00	ELECT	1000MF	20%	6.3V	
C016	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C017	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C018	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C019	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C020	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C021	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C022	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C023	1-124-140-00	ELECT	220MF	20%	6.3V	
C024	1-124-604-00	ELECT	330MF	20%	10V	
C025	1-124-438-00	ELECT	1MF	20%	50V	
C026	⚠.1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C027	⚠.1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C028	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C029	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	
C030	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C031	1-102-038-00	CERAMIC	0.001MF		500V	
C033	1-102-038-00	CERAMIC	0.001MF		500V	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C034	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C036	1-126-163-11	ELECT	4.7MF	20%	50V
C043	1-124-438-00	ELECT	1MF	20%	50V
C044	1-163-038-00	CERAMIC CHIP	0.1MF		25V
		CONNECTOR			
CN001	*1-564-269-00	PIN, CONNECTOR 3P			
CN002	*1-564-269-00	PIN, CONNECTOR 3P			
CN003	1-506-468-11	PIN, CONNECTOR 3P			
		DIODE			
D1	8-719-800-76	DIODE 1SS226			
D2	8-719-800-76	DIODE 1SS226			
D3	8-719-104-34	DIODE 1S2836			
D4	⚠.8-719-105-90	DIODE RD5.6M-B1			
D6	8-719-911-55	DIODE U05G			
D7	8-719-911-55	DIODE U05G			
D8	8-719-911-55	DIODE U05G			
D12	8-719-800-76	DIODE 1SS226			
D13	8-719-104-34	DIODE 1S2836			
		IC			
IC1	8-759-314-41	IC HA11441			
		COIL			
L001	1-408-980-21	INDUCTOR	68UH		
L002	⚠.1-459-549-11	COIL, FERRITE (HLC)			
L003	1-408-970-21	INDUCTOR	10UH		
		TRANSISTOR			
Q1	8-729-881-21	TRANSISTOR 2SC2812L5			
Q2	⚠.8-729-600-28	TRANSISTOR 2SC634-SP8			
Q3	8-729-216-22	TRANSISTOR 2SA1162			
Q4	8-729-881-21	TRANSISTOR 2SC2812L5			
Q5	8-729-216-32	TRANSISTOR 2SA1163			
Q6	8-729-881-21	TRANSISTOR 2SC2812L			
Q7	⚠.8-729-216-22	TRANSISTOR 2SA1162			
Q8	8-729-881-21	TRANSISTOR 2SC2812L5			
Q9	⚠.8-729-378-93	TRANSISTOR 2SD789-5			
Q10	8-729-100-67	TRANSISTOR 2SC1623-L7			
		RESISTOR			
R001	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R002	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R003	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R004	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R005	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R006	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R007	1-216-001-00	METAL GLAZE	10	5%	1/10W
R008	1-216-025-00	METAL GLAZE	100	5%	1/10W
R009	1-216-031-00	METAL GLAZE	180	5%	1/10W
R010	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R011	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R012	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R013	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R014	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R015	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R016	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R017	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R018	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R020	1-216-001-00	METAL GLAZE	10	5%	1/10W
R021	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R022	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R023	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R024	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R025	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R026	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R027	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R028	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R029	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R030	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R031	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R032	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R033	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R034	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R035	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R036	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R037	1-216-035-00	METAL GLAZE	270	5%	1/10W
R038	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R039	1-216-019-00	METAL GLAZE	56	5%	1/10W
R040	1-216-295-00	METAL GLAZE	0	5%	1/10W
R041	1-216-304-11	METAL GLAZE	3.3	5%	1/10W
R042	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R046	1-216-295-00	METAL GLAZE	0	5%	1/10W
R049	1-216-296-00	METAL GLAZE	0	5%	1/8W
R050	1-216-295-00	METAL GLAZE	0	5%	1/10W
R051	1-216-296-00	METAL GLAZE	0	5%	1/8W
R053	1-216-296-00	METAL GLAZE	0	5%	1/8W
R055	1-216-295-00	METAL GLAZE	0	5%	1/10W
R056	1-216-295-00	METAL GLAZE	0	5%	1/10W
R060	1-216-295-00	METAL GLAZE	0	5%	1/10W
R061	1-216-295-00	METAL GLAZE	0	5%	1/10W
R063	1-216-295-00	METAL GLAZE	0	5%	1/10W
R065	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R066	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R070	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R071	1-216-117-00	METAL GLAZE	680K	5%	1/10W
R072	1-216-113-00	METAL GLAZE	470K	5%	1/10W
		VARIABLE RESISTOR			
RV001	1-226-703-11	RES, ADJ, METAL GLAZE 10K			
RV002	1-226-702-00	RES, ADJ, METAL GLAZE 2.2K			
RV003	1-226-772-11	RES, ADJ, METAL GLAZE 4.7K			
RV004	1-226-773-11	RES, ADJ, METAL GLAZE 22K			
RV005	1-228-762-00	RES, ADJ, METAL GLAZE 1M			
RV006	1-230-041-00	RES, ADJ, METAL GLAZE 2.2M			
		TRANSFORMER			
T001	⚠.1-439-342-21	TRANSFORMER ASSY, FLYBACK			

****

*1-614-872-11 TL-16 BOARD (Ref. No. 10000 Series)
****

DIODE

D9	8-719-918-96	DIODE AA3422S
D10	8-719-812-31	DIODE TLR123
D11	*8-719-938-68	DIODE GL-3HY8

****

*1-614-871-11 TL-15 BOARD (Ref. No. 10000 Series)
****

DIODE

D5	8-719-800-24	DIODE TLR147

****

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

MISCELLANEOUS

****

Ref.No	Part No.	Description	Remark
D301	8-719-820-44	PHOTO COUPLER TLP907-0	
D302	8-719-940-81	DIODE GL454S	
D303	8-719-820-44	PHOTO COUPLER TLP907-0	
L901	⚠.1-451-251-21	DEFLECTION YOKE (MONOCHROME)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-160-A	MOTOR ASSY, THREADING	
M904	3-707-583-01	METER ASSY, EE (IRIS)	
M905	3-707-580-01	MOTOR ASSY, PZ GEAR	
M906	3-707-576-01	MOTOR ASSY, AF GEAR	
Q301	8-729-906-48	EE-TP109	
Q302	8-729-906-48	EE-TP109	
S302	1-572-298-11	SWITCH, PUSH (ME/MP, MP HG, REG PROOF)	
S901	1-571-099-11	SWITCH (CASSETTE DOWN)	
S901	1-571-791-41	SWITCH, PUSH (T/W)	
V901	⚠.1-546-051-00	CATHODE-RAY TUBE,B/W (C1M30P4)	
CNP772	1-556-824-91	CORD, CONNECTION (WITH PLUG)8P	
	1-537-241-21	TERMINAL BOARD (BATTERY)	
	1-542-121-11	MICROPHONE, ELECTRET CONDENSER (FRONT)	
	1-542-130-11	MICROPHONE, ELECTRET CONDENSER (NARRATION)	
	1-547-334-13	LENS, ZOOM (VCL-1108YB)	
	1-572-253-11	SWITCH, SLIDE (ENCODER)	
	1-574-810-11	CABLE,FLAT (1.0MM PITCH) 20P	
	1-628-060-12	FP-89 FLEXIBLE BOARD	
	1-628-061-12	FP-90 FLEXIBLE BOARD	
	1-628-777-11	FP-203 FLEXIBLE BOARD	
	1-629-191-21	FP-156 FLEXIBLE BOARD	
	1-629-192-11	FP-158 FLEXIBLE BOARD	
	1-629-194-11	FP-161 FLEXIBLE BOARD	
	1-629-195-11	FP-162 FLEXIBLE BOARD	
	1-629-196-11	FP-164 FLEXIBLE BOARD	
	1-629-776-11	FP-202 FLEXIBLE BOARD	
	1-808-505-12	SENSOR (DEW)	
	8-750-011-12	IU024AN-10C (CCD IMAGER)	
	*1-631-931-11	FP-208 FLEXIBLE BOARD	
	⚠.1-446-063-21	UNIT, DC-DC CONVERTER	

ACCESSORIES & PACKING MATERIALS (KIT)

****

Ref.No	Part No.	Description	Remark
	*3-734-412-31	SLEEVE, ACC KIT	
	*3-734-413-01	CUSHION (UPPER), ACC	
	*3-734-414-01	CUSHION (LOWER), ACC	
	*3-737-640-11	INDIVIDUAL CARTON	
	*3-737-641-01	PAD, SPACER	
	*3-737-645-01	BELT, SHOULDER	
		**AC-V30 AC POWER ADAPTOR	
		***NP-77 BATTERY PACK	

**MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
***MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

ACCESSORIES & PACKING MATERIALS

****

Ref.No	Part No.	Description	Remark
	1-574-039-11	CORD, CONNECTION	
	3-750-646-11	MANUAL, INSTRUCTION	
	3-750-647-11	MANUAL, INSTANT INFORMATION	
	3-750-647-51	MANUAL, INSTANT INFORMATION	
	3-750-647-61	MANUAL, INSTANT INFORMATION	
	A-6768-140-A	REMOTE CONTROL ASSY, GRIP	
	A-7091-067-A	HOLDER ASSY, SHOULDER PUT	
	*1-575-335-21	CORD, CONNECTION	
	*3-340-514-01	BAG, PROTECTION	
	*3-737-638-01	CUSHION (UPPER)	
	*3-737-639-01	CUSHION (LOWER)	

Ref.No	Part No.	Description	Remark

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7
MECHANICAL ADJUSTMENTS

7-1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Note: For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

7-1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

Note: The unit will not work if exposed to a strong light.

7-1-1-1. How to Trigger the Loading Operation (See Fig. 7-1-1.)

1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
2) Cover the LED assembly with an opaque cap, etc. ❶.
3) Attach a piece of tape to the RECOG switch ❷ so that the pin is held down.
4) Push the EJECT lever ❸ in the direction of the arrow Ⓐ.

7-1-1-2. Setting the Playback Mode (See Fig. 7-1-1.)

1) Follow the procedures in section 1-1-1. above.
2) Put the rubber band ❹ around the S and T reels.
3) Press the PLAY switch of unit, then push the tension regulator arm assembly ❺ in the direction of the arrow Ⓑ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
4) To stop operation, press the STOP switch.

7-1-1-3. Eject Operation (See Fig. 7-1-1.)

1) To eject, turn the EJECT switch on.

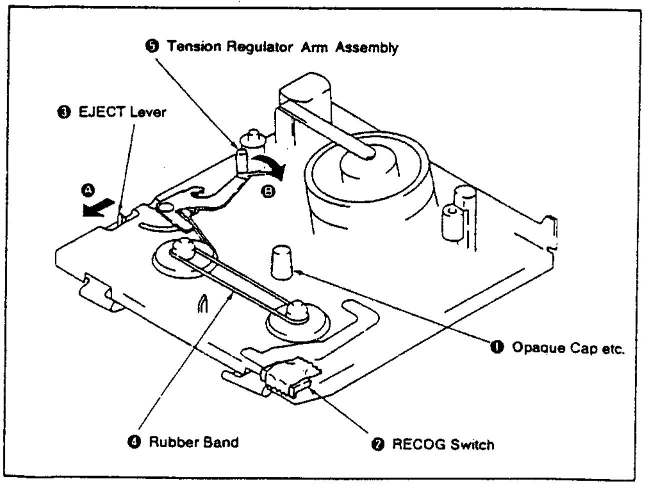

❺ Tension Regulator Arm Assembly
❸ EJECT Lever
Ⓐ
Ⓑ
❶ Opaque Cap etc.
❹ Rubber Band
❷ RECOG Switch

Fig. 7-1-1.

7-1-2. THE MODE SELECTOR

7-1-2-1. Name of Each Part (external) (See Fig. 7-1-2.)

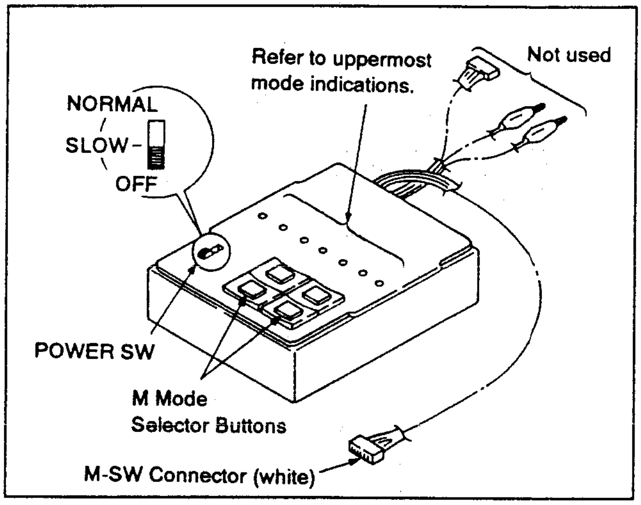

Refer to uppermost mode indications.
Not used
NORMAL
SLOW
OFF
POWER SW
M Mode Selector Buttons
M-SW Connector (white)

Fig. 7-1-2.

7-1-2-2. Connections (See Fig. 7-1-3.)

1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ❶ onto the mode selector.
2) Attach the conversion connector (Ref. No. J-8) ❸ of MODE SELECTOR III to the 6-pin connector (white) ❷ of the mode selector M-SW.
3) Remove the FP-89 flexible board ❺ from the flexible connector ❹.
4) Attach the FP-89 flexible board ❺ to the flexible connector ❻ of the MODE SELECTOR III conversion connector ❸, then attach the 2-pin connector (white) ❽ of the loading motor to the 2-pin connector (white) ❼.

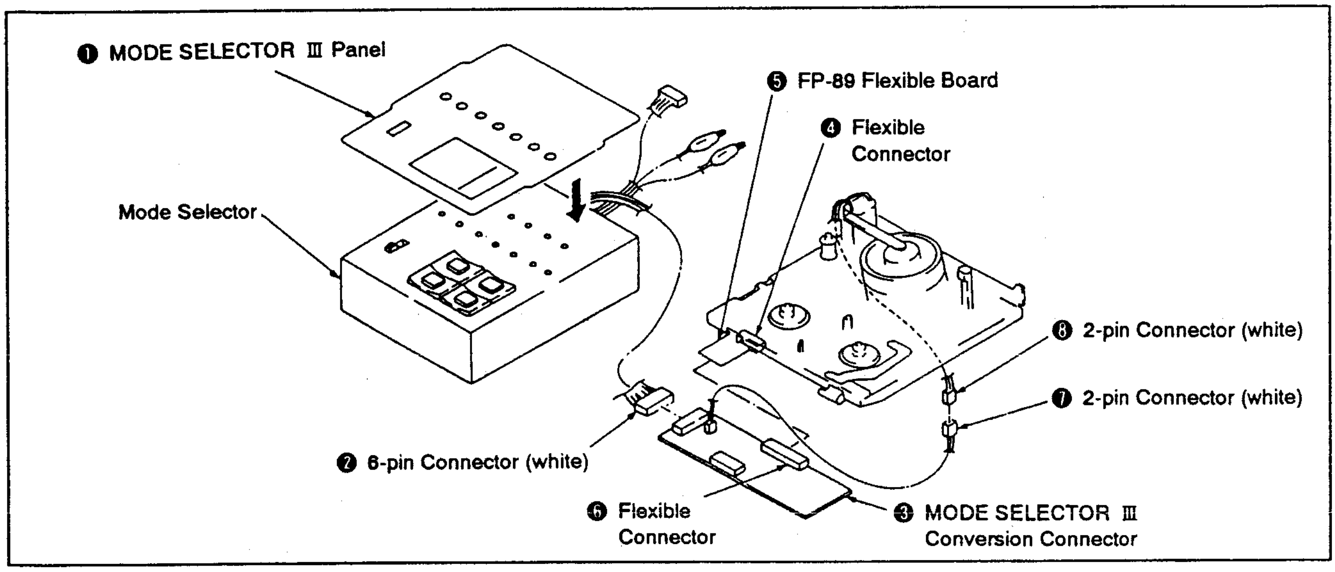

❶ MODE SELECTOR Ⅲ Panel
Mode Selector
❺ FP-89 Flexible Board
❹ Flexible Connector
❽ 2-pin Connector (white)
❼ 2-pin Connector (white)
❷ 6-pin Connector (white)
❻ Flexible Connector
❸ MODE SELECTOR Ⅲ Conversion Connector

Fig. 7-1-3.

7-1-2-3. Handling (See Fig. 7-1-2. and 7-1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (IA) → ULD → (IB) → STOP → (IC) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

Note: For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The IA, IB and IC indications light up during mode changes.

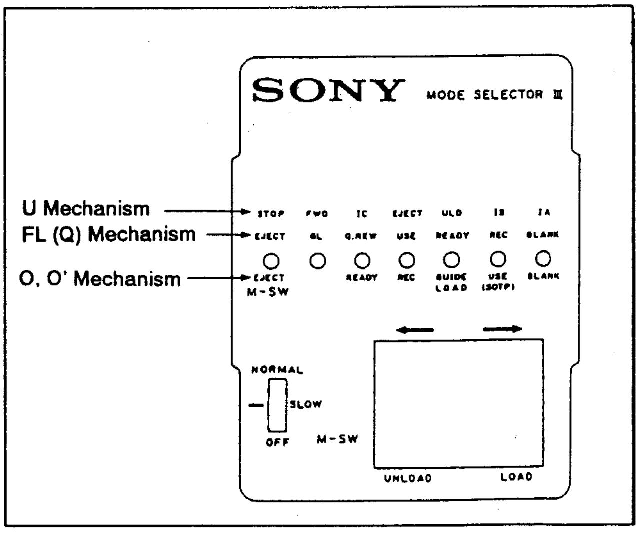

SONY MODE SELECTOR Ⅲ
U Mechanism
FL (Q) Mechanism
O, O' Mechanism
STOP
FWD
IC
EJECT
ULD
IB
IA
EJECT
SL
Q.REW
USE
READY
REC
BLANK
EJECT
M-SW
READY
REC
GUIDE LOAD
USE (SOTP)
BLANK
NORMAL
SLOW
OFF
M-SW
UNLOAD
LOAD

Fig. 7-1-4.

7-2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 7-2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

7-2-1. ROTARY DRUM ASSEMBLY CLEANING

1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

Note: Do not drive the drum with the motor, and do not turn it clockwise.
Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

7-2-2. TAPE PATH CLEANING

1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 7-2-1).

7-2-3. DRIVE SYSTEM CLEANING

1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

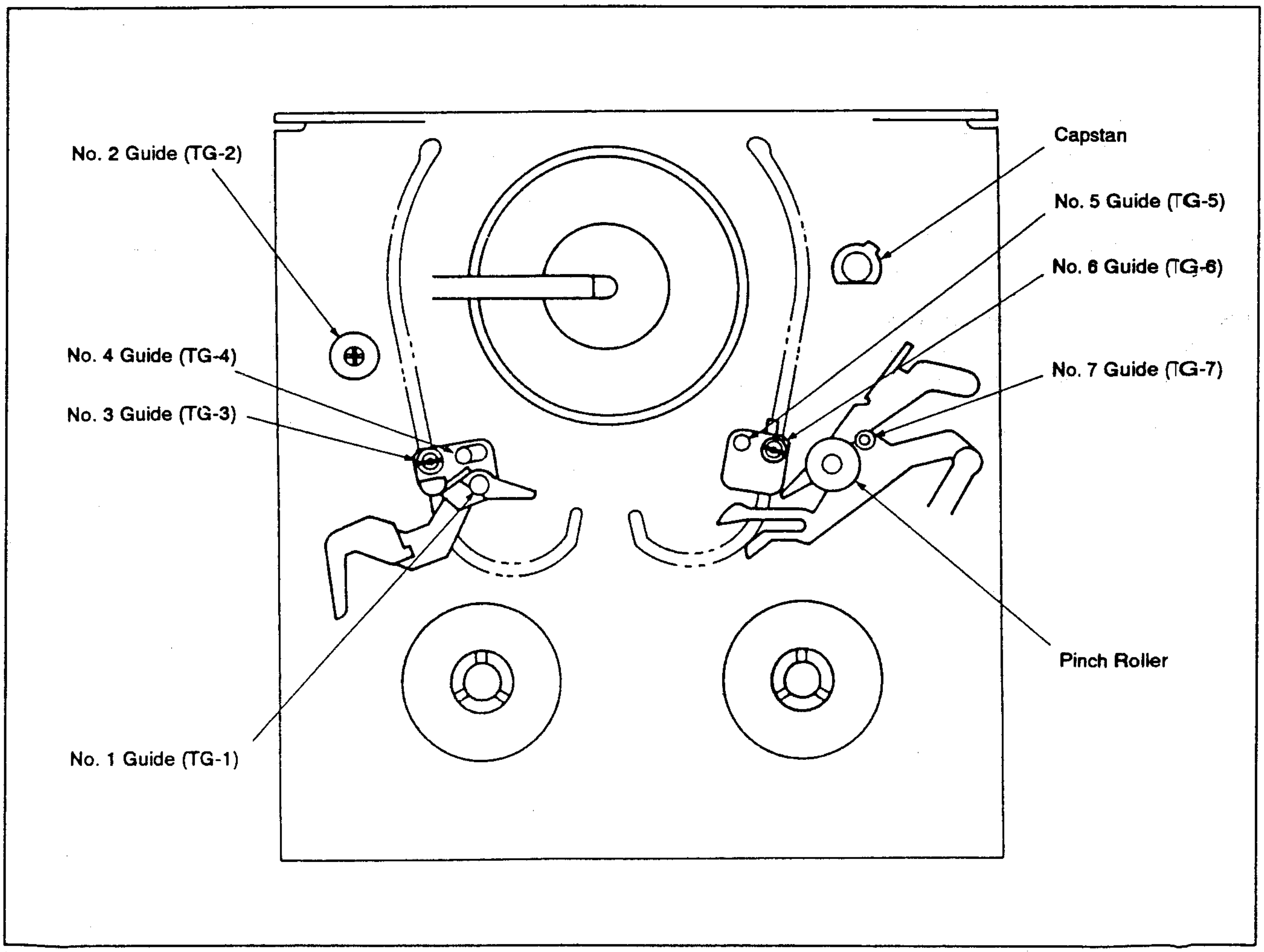


Fig. 7-2-1.

7-2-4. PERIODICAL CHECK ITEMS

○Cleaning ◎Lubrication ☆Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demagnetizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-866-01
	Relay belt (long)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-865-01
	Capstan shaft	–	◎	–	◎	–	◎	–	◎	–	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	–	◎	–	◎	–	◎	–	◎	–	◎	
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	1-541-612-11
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD, RVS torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

Notes: When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds).
  Specified oil: Part No. 7-661-018-01
  (Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a a 2mm-diameter rod as shown in Fig. 7-2-2.

On grease:

- Use the specified grease.
  Grease: Part No. 7-662-010-08
  (Sony grease SGL-701)

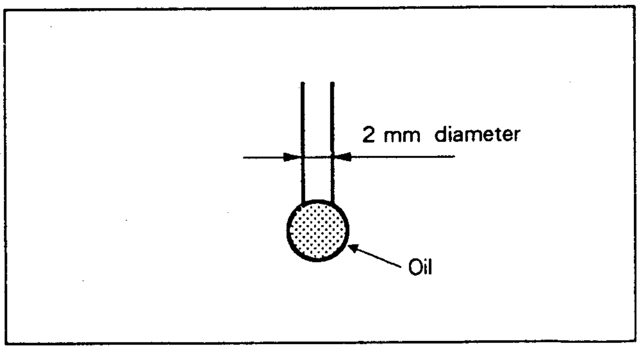


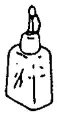
Fig. 7-2-2.

7-2-5. SERVICING TOOLS

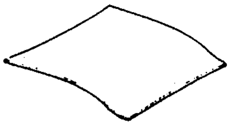
Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	–	
J-2	Chamois cloth	2-034-697-00	–	
J-3	Head demagnetizer	Commercially available	–	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	**Alignment tape NTSC (WR5-1CP)**	**8-967-995-07**		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-624-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope
Analog tester (20 kΩ)

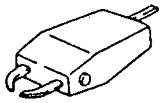
J-1



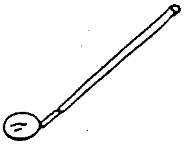
J-2



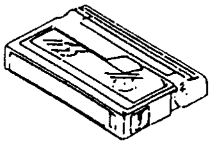
J-3



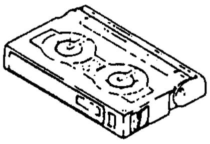
J-4



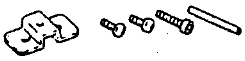
J-5



J-6

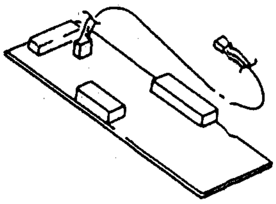


J-7

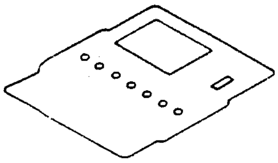


(Attached to the maintenance rotary upper drum)

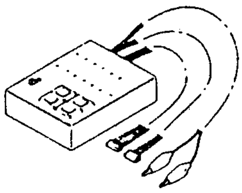
J-8



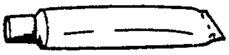
J-9



J-10



J-11



7-3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Notes:
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
- Modes within a frame ☐ are those set by pressing the buttons of the mode selector.

7-3-1. HC ROLLER ASSEMBLY

1. Removal (See Fig. 7-3-1.)

1) Remove the screw ❶, then remove the HC roller assembly ❷.

2. Installation (See Fig. 7-3-1.)

1) Align the two dowels ❸ attached to the HC roller assembly ❷ with the two holes ❹ in the mechanism chassis.
2) Secure the HC roller assembly ❷ with the screw ❶.

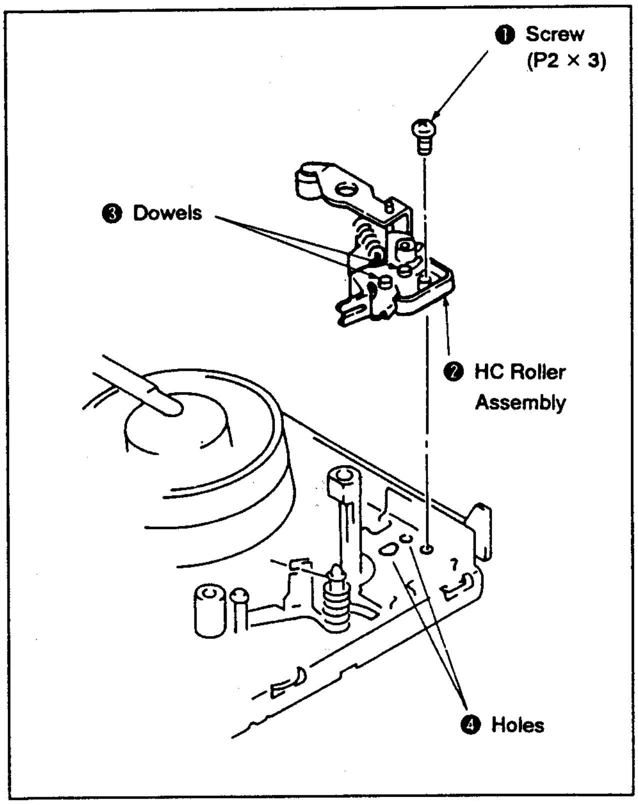

❶ Screw (P2 × 3)
❸ Dowels
❷ HC Roller Assembly
❹ Holes

Fig. 7-3-1.

7-3-2. GUIDE GUARD ASSEMBLY

1. Removal (See Fig. 7-3-2.)

Remove the screw ❶, then remove the guide guard assembly ❷.

2. Installation (See Fig. 7-3-2.)

1) Align the dowel ❸ attached to the guide guard assembly ❷ with the hole ❹.
2) Secure the guide guard assembly ❷ with the screw ❶.

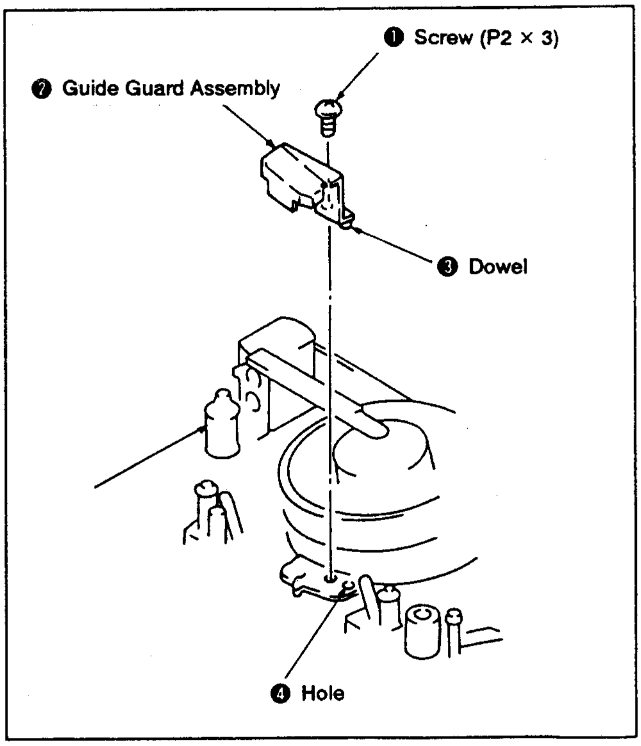

❶ Screw (P2 × 3)
❷ Guide Guard Assembly
❸ Dowel
❹ Hole

Fig. 7-3-2.

7-3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

1. Removal (See Fig. 7-3-3.)

1) Set the ULD mode.
2) Turn the stopper ❶ in the direction of the arrow Ⓐ as far as it will go.
3) Remove the two screws ❷, then remove the DC motor ❸.

2. Installation (See Fig. 7-3-3.)

1) Align the two screwed dowels ❹ with the two holes ❺, then engage the toothed part ❻ with the connecting gear ❼.
2) Secure the DC motor assembly ❸ with the two screws ❷.
3) Turn the stopper ❶ in the direction of the arrow Ⓑ as far as it will go.

Note:
- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ❸ and the chassis.
- Do not touch the capstan motor axle*, the oil seal* and the rotor*.

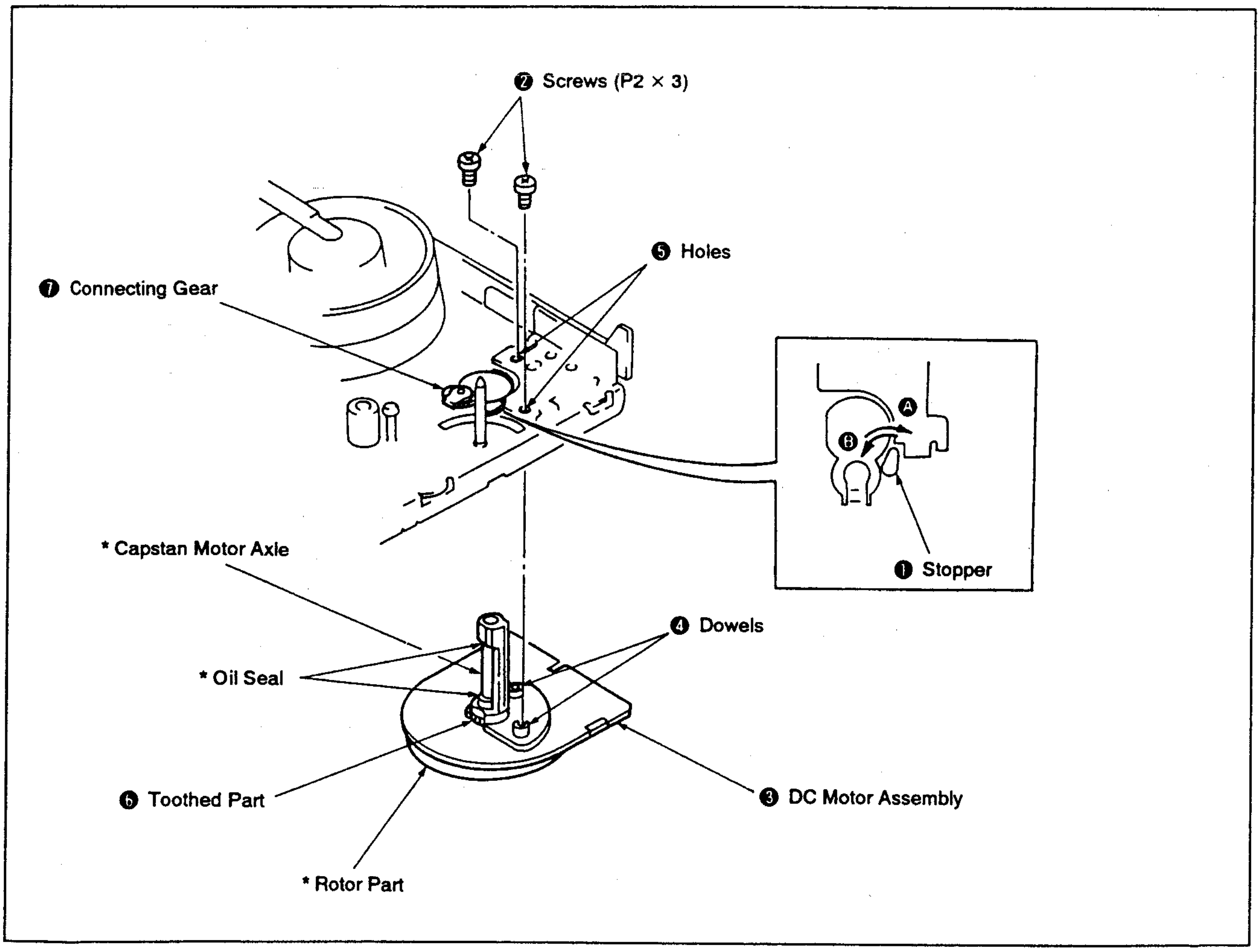

❷ Screws (P2 × 3)
❺ Holes
❼ Connecting Gear
Ⓐ
Ⓑ
❶ Stopper
* Capstan Motor Axle
❹ Dowels
* Oil Seal
❻ Toothed Part
❸ DC Motor Assembly
* Rotor Part

Fig. 7-3-3.

7-3-4. S BRAKE, T BRAKE

1. Removal (See Fig. 7-3-4.)

1) Remove the torsion coil spring (ST) ❶.
2) Remove the axle holding pin ❷, then remove the T brake ❸.
3) Remove the axle holding pin ❹, then remove the S brake ❺.

2. Installation (See Fig. 7-3-4.)

1) While fitting the toothed part ❻ into the notch ❼, mount the S brake ❺.
2) Insert the axle holding pin ❹.
3) Insert the axle ❽ to the S reel side of the brake release arm ❾ so that the Ⓐ part comes closer to the drum than part Ⓑ, and mount the T brake ❸.
4) Insert the axle holding pin ❷.
5) Insert the torsion coil spring (ST) ❶ below the claw ⓫ of the axle ❿, then hook it to two claws ⓬.

Note: Confirm that the claws of axle holding pins ❷ and ❹ are not broken before assembling.

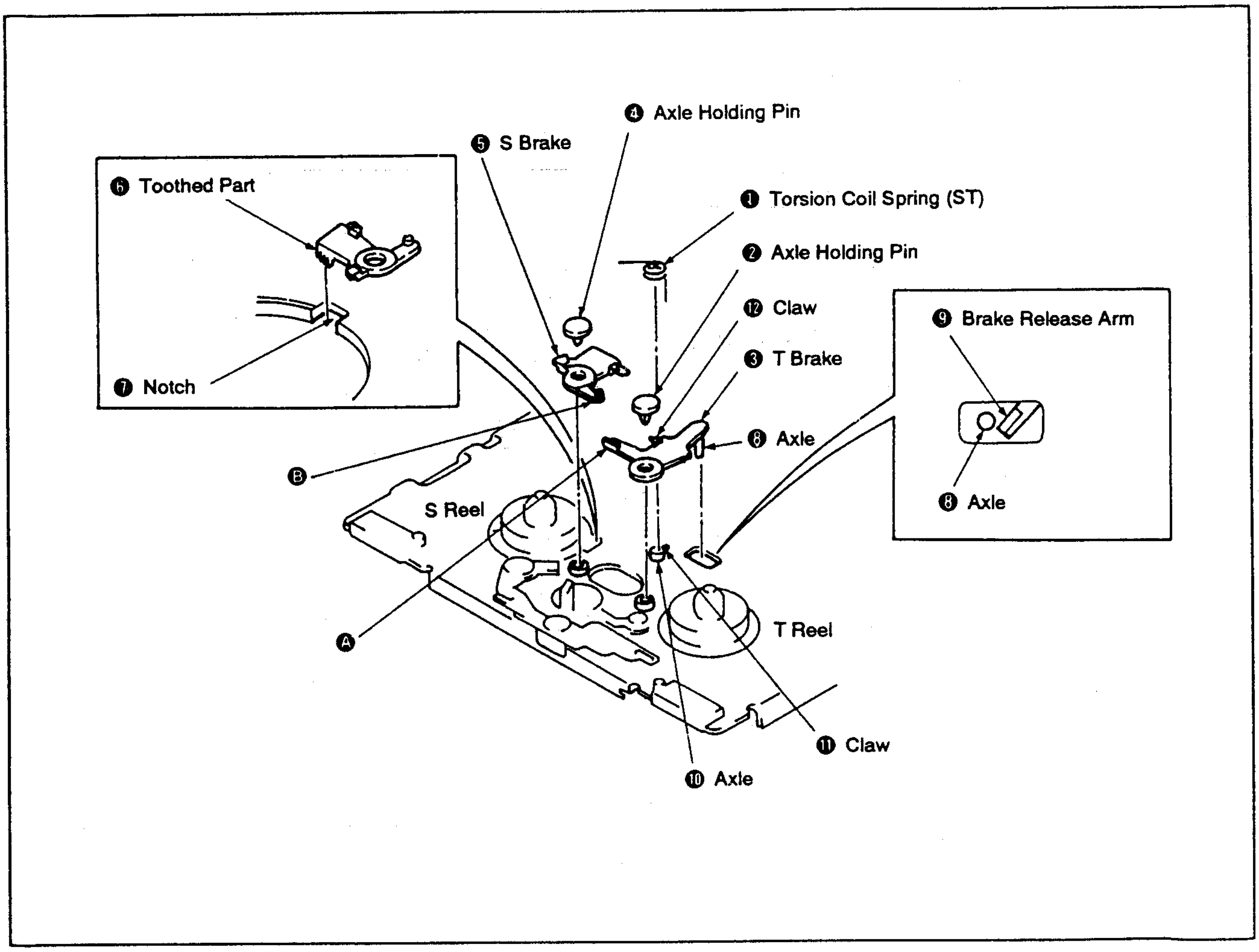

❹ Axle Holding Pin
❺ S Brake
❻ Toothed Part
❼ Notch
❶ Torsion Coil Spring (ST)
❷ Axle Holding Pin
⓬ Claw
❸ T Brake
❽ Axle
❾ Brake Release Arm
❽ Axle
Ⓑ
S Reel
Ⓐ
T Reel
⓫ Claw
❿ Axle

Fig. 7-3-4.

7-3-5. LB BRAKE, AXLE HOLDING PINS

1. Removal (See Fig. 7-3-5.)

1) Remove the screw ❶, then remove the TL holding plate ❷.
2) Remove the axle holding pin ❸, then remove the LB brake ❹.
3) Remove the axle holding pin ❺, then remove the LB lever ❻.

2. Installation (See Fig. 7-3-5.)

1) Mount the LB lever ❻ matching it to pin ❼ of the LB gear, then secure it with the axle holding pin ❺.
2) Insert the pin ❽ into the notch ❾ of the LB lever ❻, then mount the LB brake ❹ while inserting the toothed part ❿ into the notch ⓫.
3) Insert the axle holding pin ❸.
4) Align the dowel ⓬ with the hole ⓭, then mount the TL holding plate and secure it with the screw ❶.

Note: Confirm that the claws of axle holding pins ❸ and ❺ are not broken before assembling.

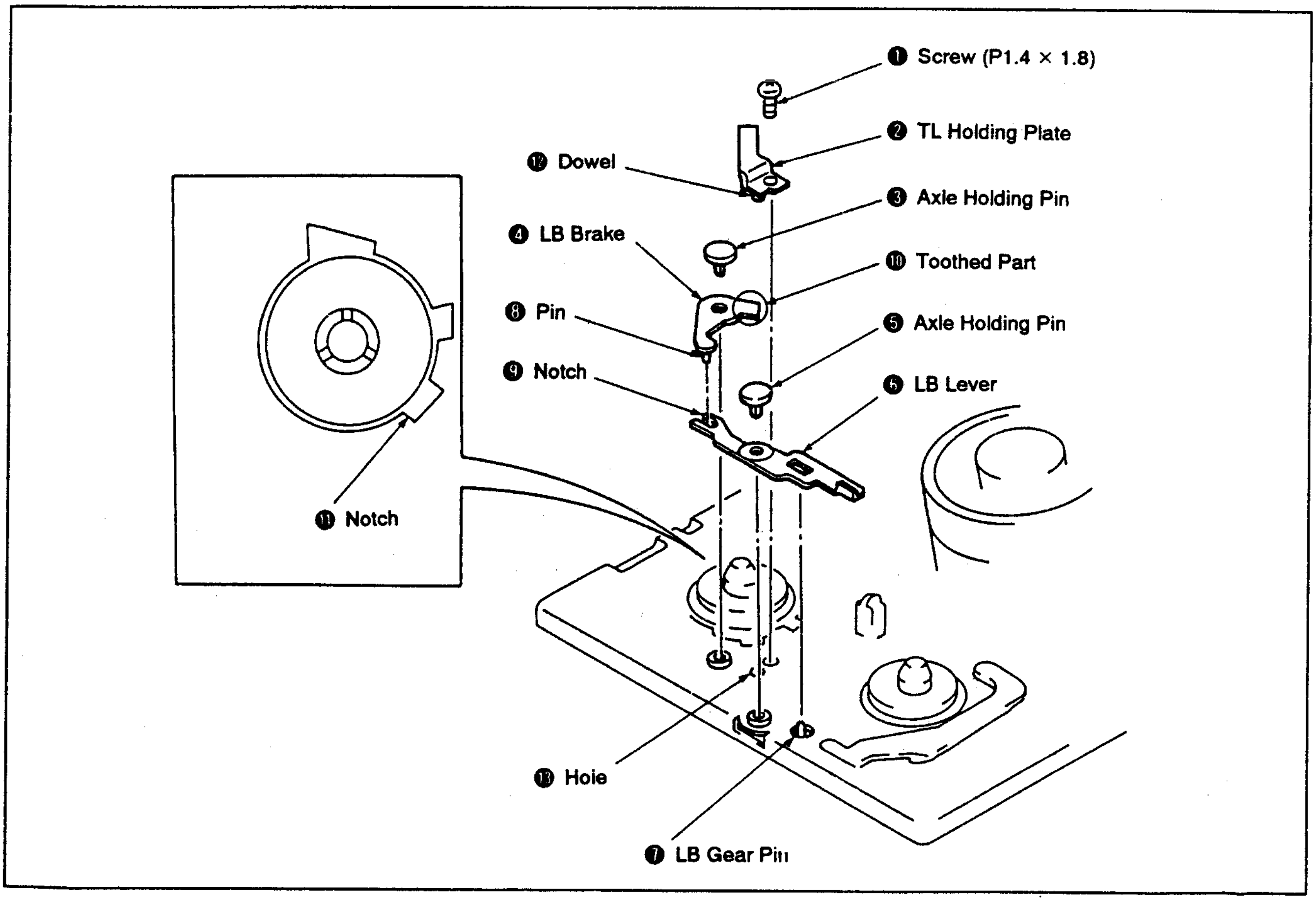

❶ Screw (P1.4 × 1.8)
❷ TL Holding Plate
⓬ Dowel
❸ Axle Holding Pin
❹ LB Brake
❿ Toothed Part
❽ Pin
❺ Axle Holding Pin
❾ Notch
❻ LB Lever
⓫ Notch
⓭ Hole
❼ LB Gear Pin

Fig. 7-3-5.

7-3-6. LB RELEASE ARM

1. **Removal (See Fig. 7-3-6.)**
   1) While pushing the claw ❶ in the direction of the arrow, remove the LB release arm ❷.

2. **Installation (See Fig. 7-3-6.)**
   1) Fit the LB release arm ❷ to the axle ❸, insert protrusions ⓐ, ⓑ, ⓒ, ⓓ into the three holes ❹, then secure with the claw ❶.

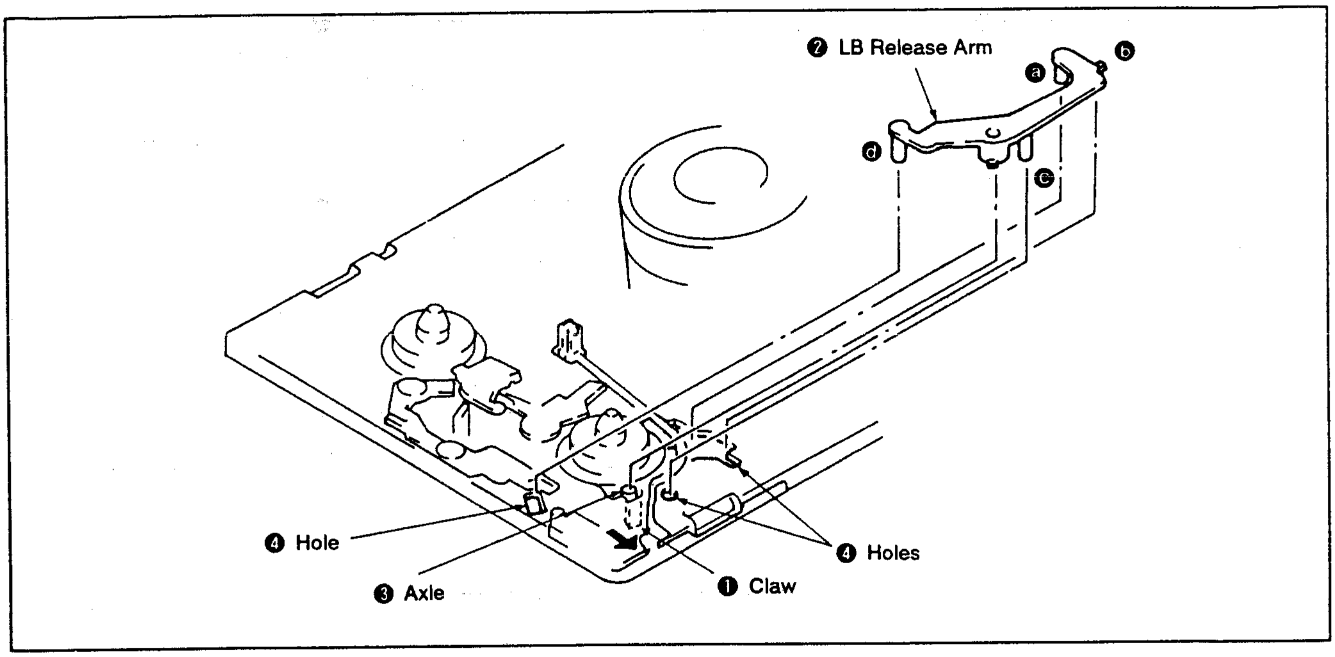

❷ LB Release Arm
ⓐ
ⓑ
ⓓ
ⓒ
❹ Hole
❸ Axle
❹ Holes
❶ Claw

Fig. 7-3-6.

7-3-7. RK STOPPER, RK STOPPER ARMS

1. **Removal (See Fig. 7-3-7.)**
   1) Remove the torsion coil spring (RK) ❶.
   2) Open the chassis claw ❷, then remove the RK stopper arm ❸.
   3) Remove the RK stopper ❹.

2. **Installation (See Fig. 7-3-7.)**
   1) Mount the RK stopper ❹ onto the axle ❺.
   2) Mount the RK stopper arm ❸ onto the axle ❻, insert Pin ❿ into hole ⓫, then hook the claw ❷ of the chassis to the hole ❼.
   3) Insert the torsion coil spring (RK) ❶ into the axle ❺, then hook it to claws ❽ and ❾.

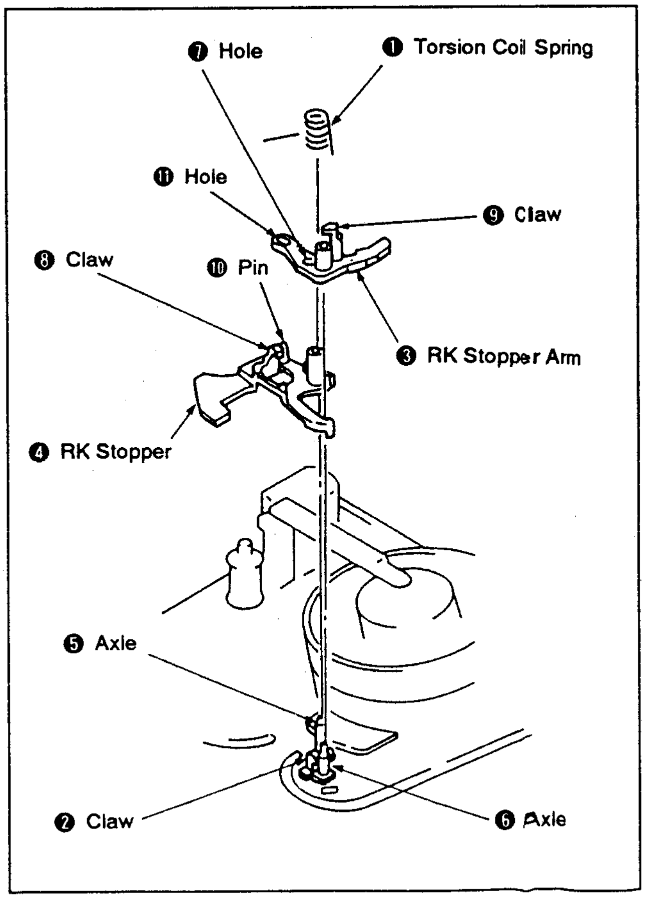

❼ Hole
❶ Torsion Coil Spring
⓫ Hole
❾ Claw
❽ Claw
❿ Pin
❸ RK Stopper Arm
❹ RK Stopper
❺ Axle
❷ Claw
❻ Axle

Fig. 7-3-7.

7-3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

1. Removal (See Fig. 7-3-8.)

1) Set the IB mode.
2) Remove the stopper washer ①, then remove the pinch arm assembly ②.
3) Bend the claw ④ inside hole ③ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ⑤.
4) Remove the TG-7 arm assembly ⑥.

2. Installation (See Fig. 7-3-8.)

1) Grease the inner surfaces of hole ⑦ (See Fig. A).
2) Insert the axle ⑧ of the TG-7 arm assembly ⑥ into the hole ⑦.
3) Grease the shaded section ⓐ (See Fig. A).
4) Insert the TG-7 plate spring ⑤ into the hole ③, then secure it with the claw ④.
5) Apply half a drop of oil to the axle ⑨ (See Fig. B).
6) Fit the pinch arm assembly ② to the axle ⑨ and insert the pinch roller sub arm assembly tab ⑩ into the ⓑ part.
7) Install the stopper washer ①.

Note:
- Take care not to grease the screw ⑪ of the TG-7 arm assembly ⑥ (See Fig. A).
- When fitting the pinch arm assembly ② to the axle ⑨, make sure that it does not touch the TG-7 guide ⑫ or the rubber roller ⑬.
- After assembling, be sure to perform tape path adjustment as described in **section 7-4.**

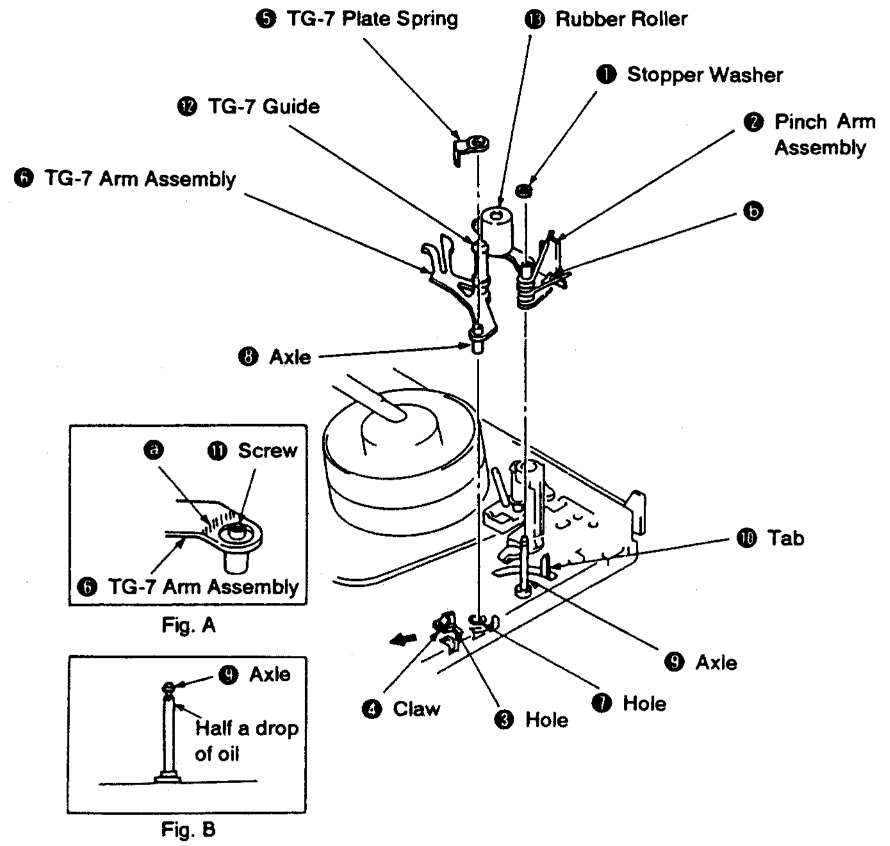

⑤ TG-7 Plate Spring
⑬ Rubber Roller
① Stopper Washer
⑫ TG-7 Guide
② Pinch Arm Assembly
⑥ TG-7 Arm Assembly
ⓑ
⑧ Axle
ⓐ
⑪ Screw
⑥ TG-7 Arm Assembly
⑩ Tab
⑨ Axle
Half a drop of oil
⑨ Axle
④ Claw
③ Hole
⑦ Hole

Fig. A

Fig. B

Fig. 7-3-8.

7-3-9. TG-2 ASSEMBLY

1. Removal (See Fig. 7-3-9.)

1) Remove the TG-2 upper flange assembly ❶.
2) Remove the TG-2 roller ❷, the TG-2 sleeve ❸, the TG-2 lower flange ❹ and the compression spring ❺.

2. Installation (See Fig. 7-3-9.)

1) Mount the compression spring ❺, the TG-2 lower flange ❹, the TG-2 sleeve ❸ and the TG-2 roller ❷ to the axle.
2) Secure the TG-2 upper flange ❶ to the axle by rotating it 4 to 6 turns.

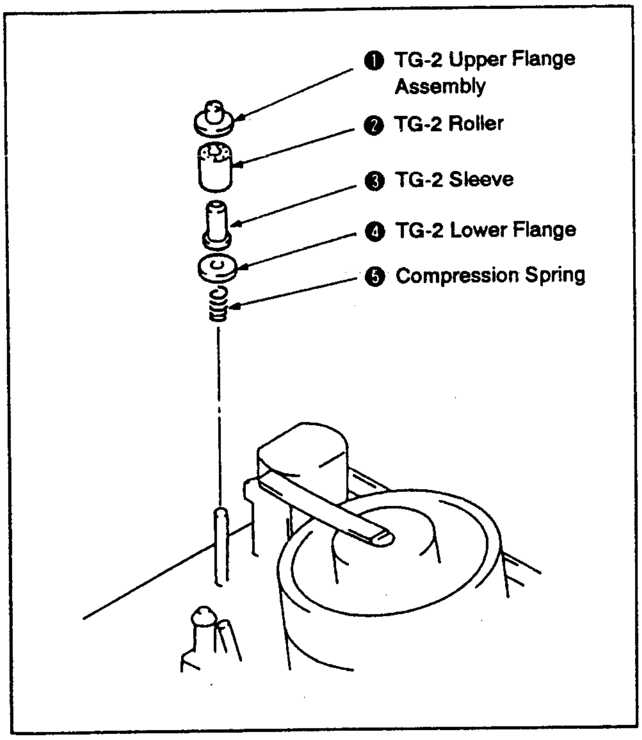

❶ TG-2 Upper Flange Assembly
❷ TG-2 Roller
❸ TG-2 Sleeve
❹ TG-2 Lower Flange
❺ Compression Spring

Fig. 7-3-9.

3. TG-2 Height Preset (See Fig. 7-3-10.)

1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by turning the TG-2 upper flange ❶.

Note: After adjustment, be sure to perform tape path adjustment as described in section 7-4.

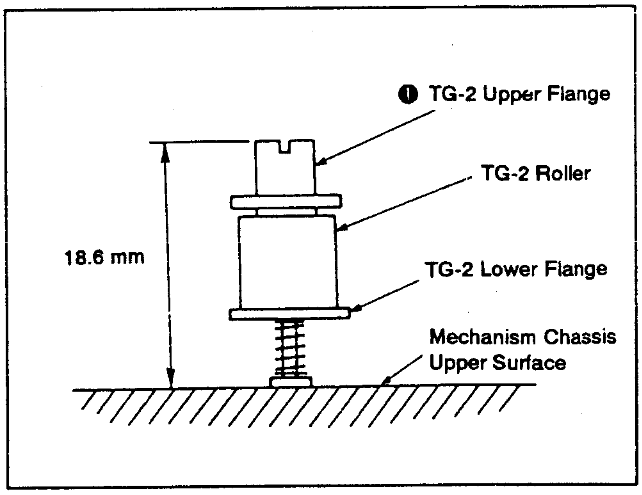

❶ TG-2 Upper Flange
TG-2 Roller
18.6 mm
TG-2 Lower Flange
Mechanism Chassis Upper Surface

Fig. 7-3-10.

7-3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

1. Removal (See Fig. 7-3-11.)

1) Remove the S brake and T brake as described in **section 7-3-4.**
2) Remove the TL holding plate as described in **section 7-3-5.**
3) Remove the tension regulator band assembly as described in **section 7-3-11.**
4) Remove the S reel table assembly ❶.
5) Turn the stopper ❷ approx. 90 ° in the direction of the arrow Ⓐ.
6) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, remove the T reel table assembly ❹.

2. Installation (See Fig. 7-3-11.)

1) Apply half a drop of oil to the axle ❺ (See Fig. A).
2) Move the RK gear ❻ in the direction of the arrow Ⓒ and the TS brake ❼ in the direction of the arrow Ⓓ, putting them out of the way.
3) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, mount the T reel table assembly ❹ onto the axle ❺, then turn the stopper ❷ in the direction of the arrow Ⓔ as far as it will go.
4) Apply half a drop of oil to the axle ❽ (See Fig. B).
5) Move the RK gear ❻ in the direction of the arrow Ⓕ, the UL brake ❾ in the direction of the arrow Ⓖ and the LB brake ❿ in the direction of the arrow Ⓗ, putting them out of the way.
6) Mount the S reel table ❶ onto the axle ❽.
7) Mount the tension regulator band assembly as described in **section 7-3-11.**
8) Mount the TL holding plate as described in **section 7-3-5.**
9) Mount the S brake and T brake assemblies as described in **section 7-3-4.**

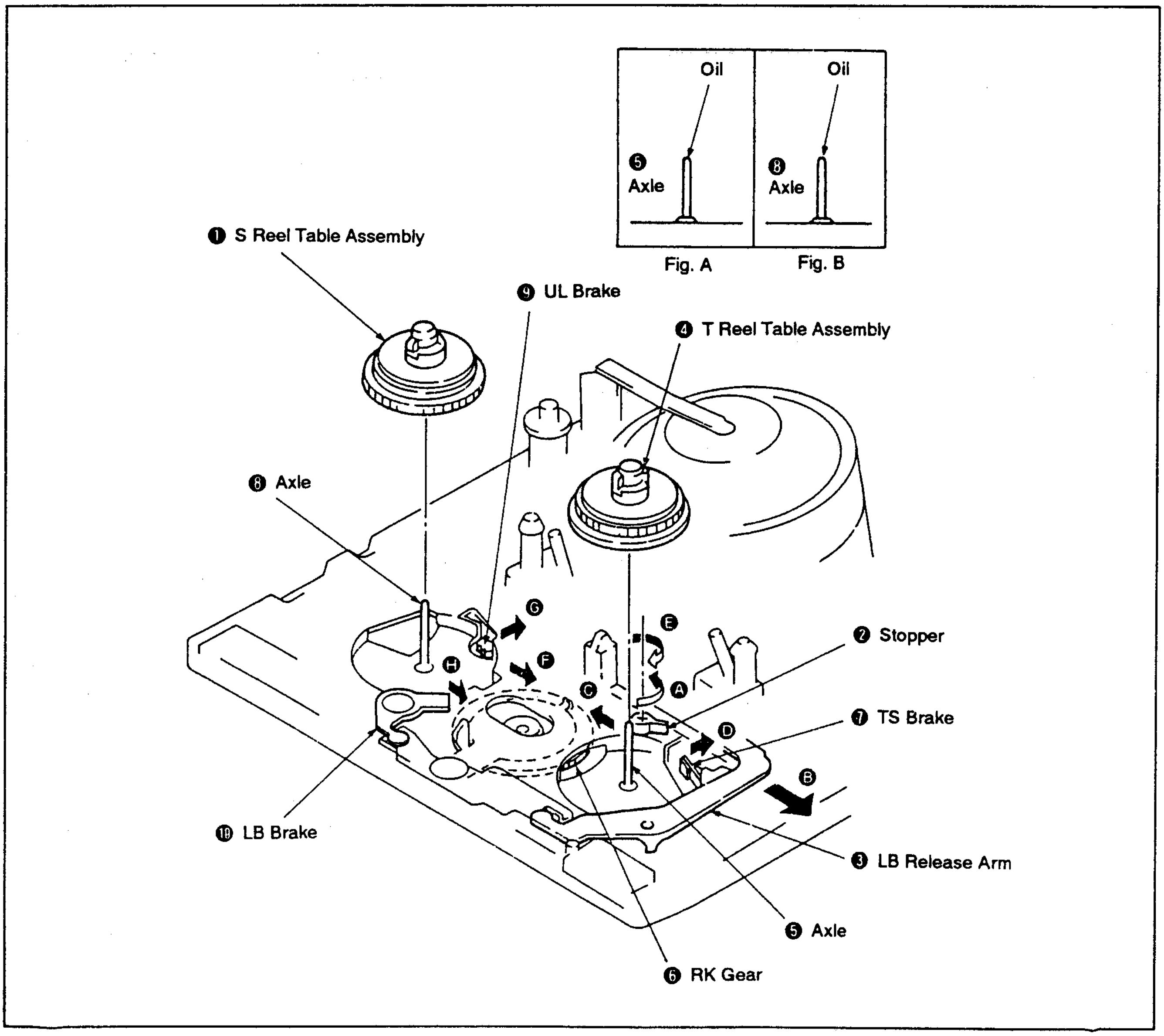

Oil
❺ Axle
Fig. A
Oil
❽ Axle
Fig. B
❶ S Reel Table Assembly
❾ UL Brake
❹ T Reel Table Assembly
❽ Axle
Ⓖ
Ⓔ
❷ Stopper
Ⓗ
Ⓕ
Ⓒ
Ⓐ
❼ TS Brake
Ⓓ
Ⓑ
❿ LB Brake
❸ LB Release Arm
❺ Axle
❻ RK Gear

Fig. 7-3-11.

7-3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

1. Removal (See Fig. 7-3-12.)

1) Remove the TL holding plate as described in **section 7-3-5.**
2) Remove the screw ❶.
3) Using a thin screwdriver or the like, remove the tension regulator band assembly ❹ from the axle ❸ of tension regulator arm assembly ❷.
4) Remove the tension spring ❺.
5) Remove the stopper washer ❻ from the back of the mechanism chassis, then remove the tension regulator arm assembly ❷.
6) Open the claw ❼, then remove the adjust arm ❽.

Note: When removing the tension regulator band assembly ❹, take care not to twist or bend it, and not to touch the felt surface ❾.

2. Installation (See Fig. 7-3-12.)

1) Engage the adjust arm ❽ in the position shown in Fig. A, then close the claw ❼.
2) Apply half a drop of oil to the hole ❿.
3) Mount the tension regulator arm assembly ❷, then insert it into the slot ⓫ so that the ⓐ part comes to the arrow Ⓐ side of the switch lever assembly (See Fig. B).
4) While holding the tension regulator arm assembly ❷ from the mechanism chassis front, secure it with the stopper washer ❻ from the back.
5) Hook the R hook of the tension spring ❻ to the adjust arm ❽ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ❷.
6) Mount the tension regulator band assembly ❹ onto the axle ❸ of tension regulator arm assembly ❷, and place it so that the felt surface ❾ comes against the shaded portion of the S reel table assembly ⓬.
7) Mount the tension regulator plate ⓭ of the tension regulator band assembly ❹ so that it is aligned with the dowel ⓮ of the mechanism chassis, then secure it temporarily with the screw ❶.
8) Mount the TL holding plate as described in **section 7-3-5.**
9) Adjust tension regulator FWD position as described in **section 7-3-12.**
10) Perform adjust arm adjustment as described in **section 7-3-22.**

Note: When mounting the tension regulator band assembly ❷, take care not to twist or bend it, and not to touch the felt surface ❾.

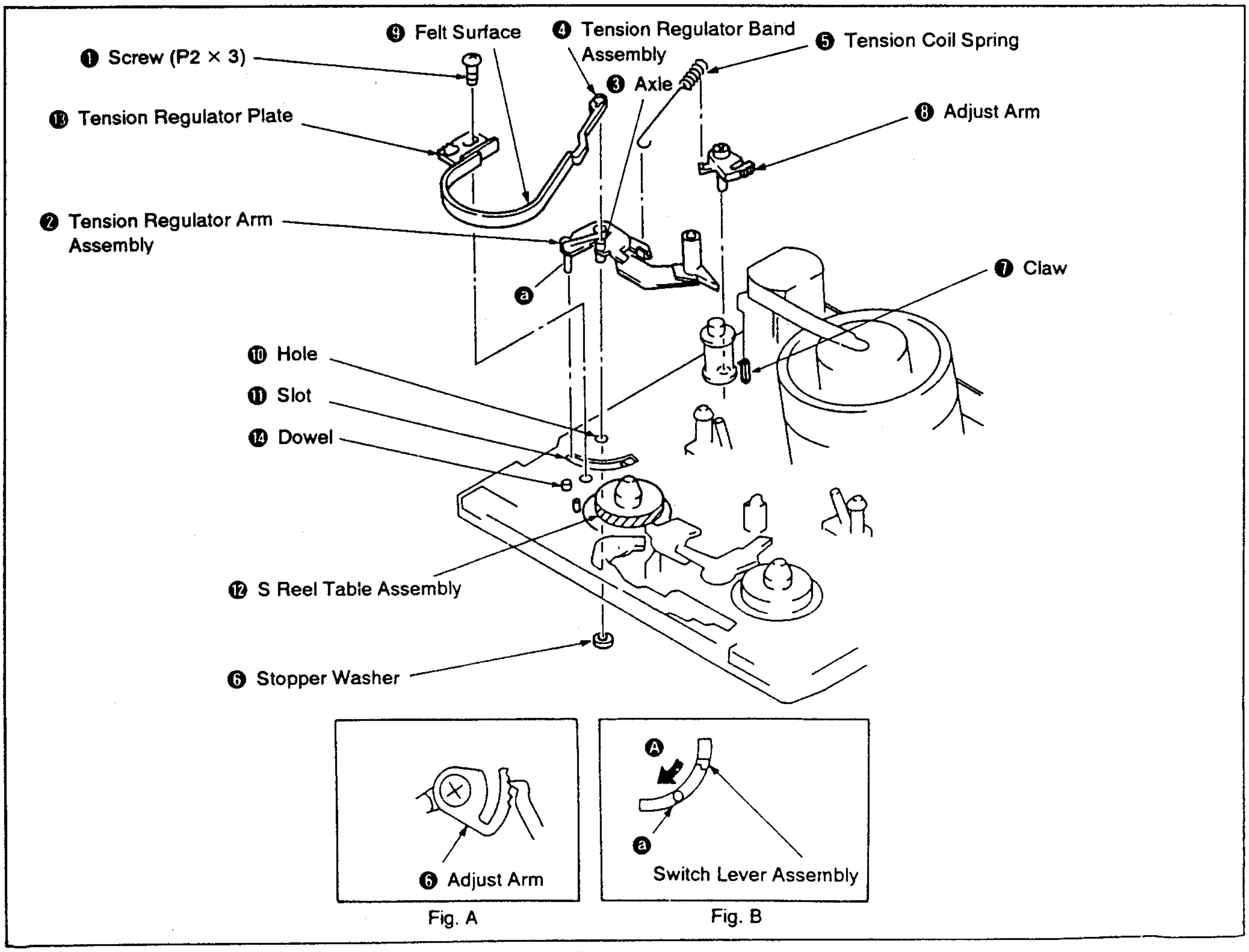

❶ Screw (P2 × 3)
❾ Felt Surface
❹ Tension Regulator Band Assembly
❺ Tension Coil Spring
❸ Axle
⓭ Tension Regulator Plate
❽ Adjust Arm
❷ Tension Regulator Arm Assembly
❼ Claw
ⓐ
❿ Hole
⓫ Slot
⓮ Dowel
⓬ S Reel Table Assembly
❻ Stopper Washer
❻ Adjust Arm
Ⓐ
ⓐ
Switch Lever Assembly

Fig. A

Fig. B

Fig. 7-3-12.

7-3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 7-3-13.)

1) Load a cassette tape and set the FWD mode.
2) Confirm whether the distance between ⓐ part of the tension regulator arm ❶ and the groove ❷ of the chassis is 1.1 ± 0.3 mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
3) Loosen the fixing screw ❹ of the tension regulator band assembly ❸.
4) Slide the tension regulator plate ❺ in the direction of the arrow Ⓐ if the measured distance is over the specified range, and in the direction of the arrow Ⓑ if it is under that range. Then, fix it with the screw ❹.
5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

Note: Use a cassette with the tape advanced halfway.

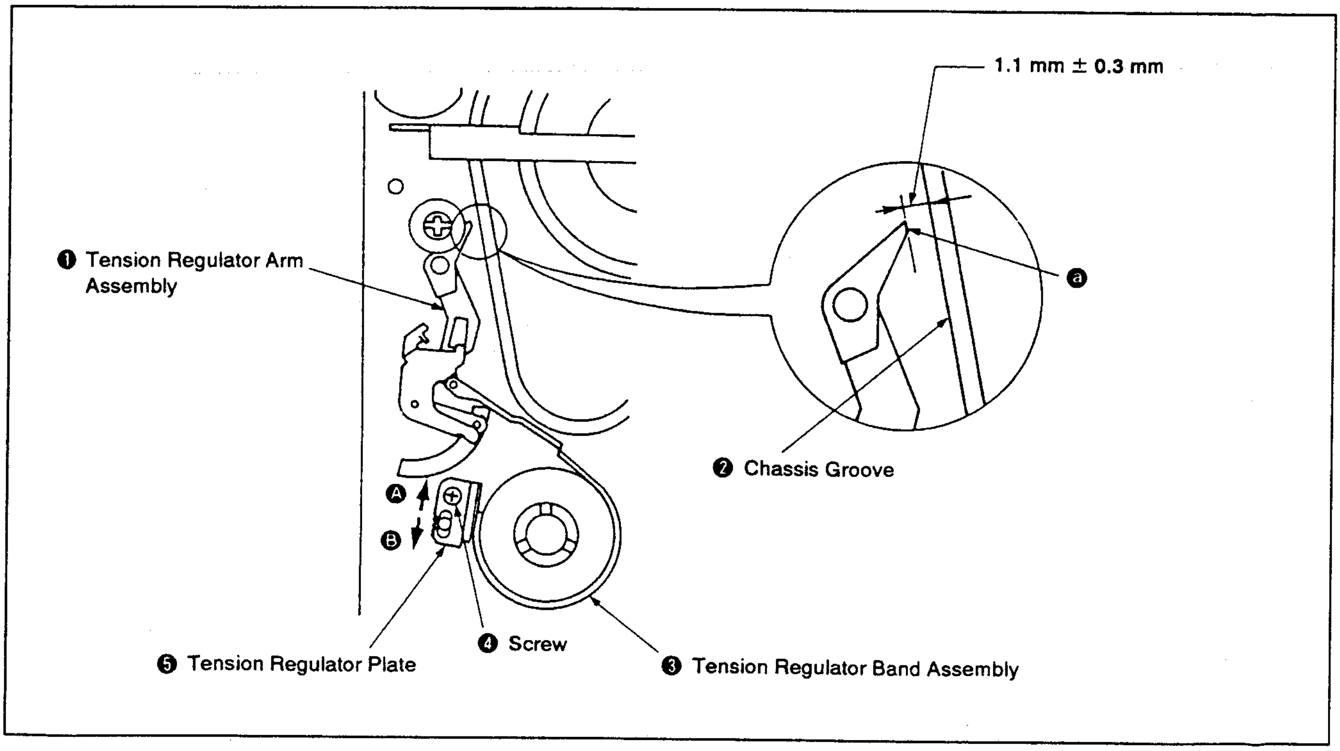

1.1 mm ± 0.3 mm
❶ Tension Regulator Arm Assembly
ⓐ
❷ Chassis Groove
Ⓐ
Ⓑ
❹ Screw
❺ Tension Regulator Plate
❸ Tension Regulator Band Assembly

Fig. 7-3-13.

7-3-13. DRUM ASSEMBLY, DEW SENSOR

1. Removal (See Fig. 7-3-14.)

1) Set the EJECT mode.
2) Remove the flexible board ❶ and the two connectors ❷.
3) Remove the guide guard assembly as described in section 7-3-2.
4) Remove the screw ❸, then remove the axle ground terminal ❹.
5) Remove the three screws ❺, then remove the drum assembly ❻ from the mechanism chassis.
6) Remove the connector ❿
7) Remove the screw ❼, then remove the dew sensor ❽.

Note:
- When removing the drum assembly ❻ from the mechanism chassis, take care not to cut the flexible board ❶ or the harness.
- Take care not to touch the head tip ❾.

2. Installation (See Fig. 7-3-14.)

1) Insert part Ⓐ of the dew sensor ❽ into the notch ⓫ of the mechanism chassis, then secure it with the screw ❼.
2) Mount the connector ❿.
3) Clamp the harness ⓯ of the dew sensor ❽ with the reinforcing the claw ⓰ of the plate SS assembly (See Fig. A).
4) Insert the connector ❷ and the flexible board ❶ into the hole ⓬ of the mechanism chassis, align the drum assembly ❻ with the two dowels ⓭ and secure it with the three screws ❺.
5) Align the axle ground terminal ❷ with the two dowels ⓮ of the mechanism chassis and secure it with the screw ❸.
6) Mount the guide guard assembly as described in section 7-3-2.
7) Mount the two connectors ❷ and the flexible board ❶.

Note:
- Take care not to cut the flexible board ❶ or the harness ⓯.
- Take care not to touch the head tip ❾.
- After assembling, be sure to perform Tape Path Adjustment following instructions in section 7-5.

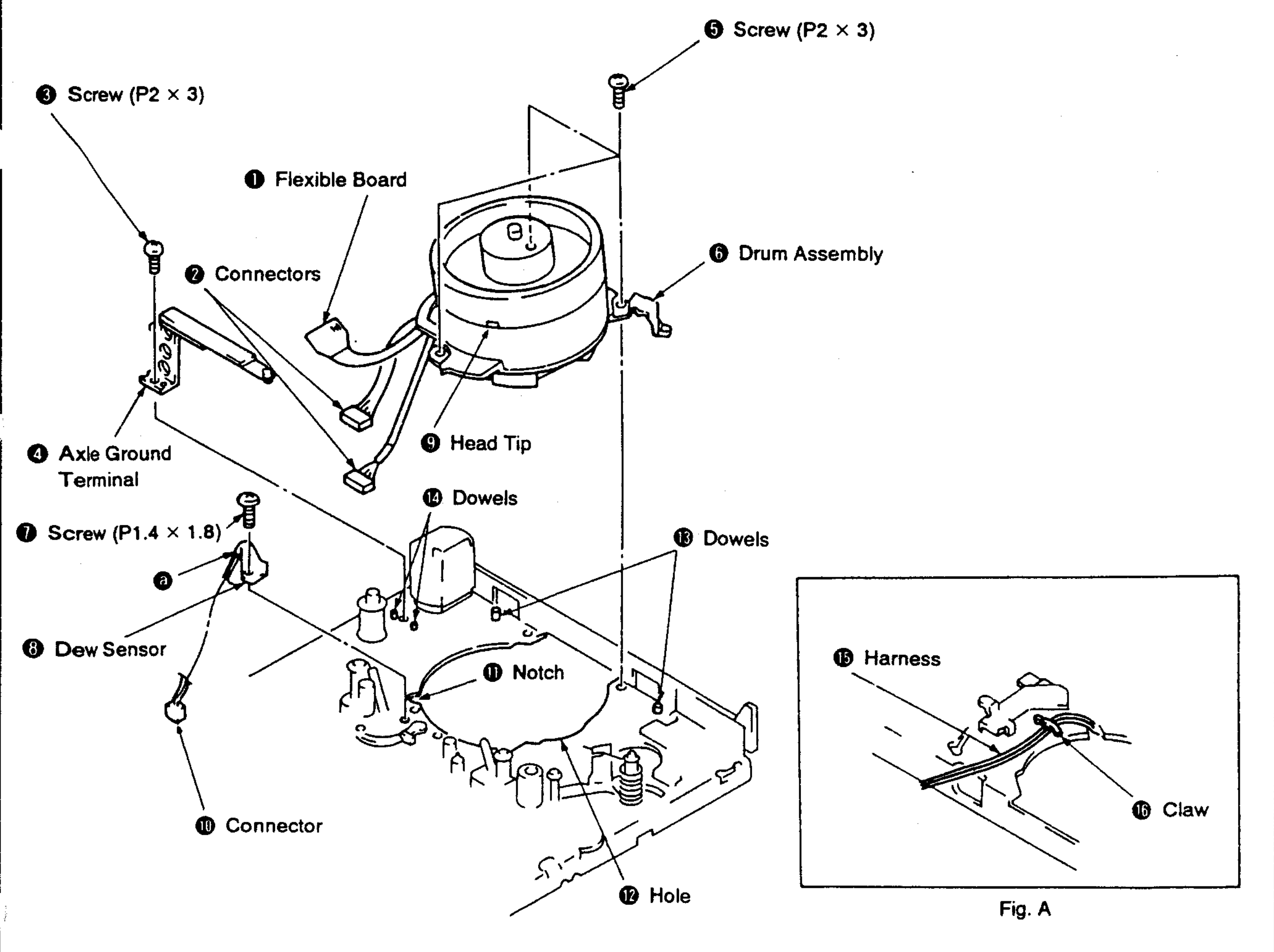

❺ Screw (P2 × 3)
❸ Screw (P2 × 3)
❶ Flexible Board
❷ Connectors
❻ Drum Assembly
❹ Axle Ground Terminal
❾ Head Tip
⓮ Dowels
❼ Screw (P1.4 × 1.8)
⓭ Dowels
ⓐ
❽ Dew Sensor
⓫ Notch
⓯ Harness
⓰ Claw
❿ Connector
⓬ Hole
Fig. A

Fig. 7-3-14.

7-3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

1. Removal (See Fig. 7-3-15.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Set the STOP mode.
3) Remove the claw ❶, then remove the eject lever ❷.
4) Remove the stopper washer ❸, then remove the switch lever assembly ❹.
5) Remove the pinch roller load spring ❺.
6) Remove the stopper washer ❻, then remove the pinch roller sub arm assembly ❼.

2. Installation (See Fig. 7-3-15.)

1) Grease the axle ❽ (See Fig. A).
2) Assemble by inserting ⓐ part of the pinch roller sub arm assembly ❼ into the slot ❾, then insert the pin ❿ into the loading lever assembly notch ⓫.
3) Secure with the stopper washer ❻.
4) Mount the pinch roller load spring ❺ by catching its ⓑ end between the claw ⓬ and the chassis side and its ⓒ end to the claw ⓬.
5) Apply half a drop of oil to the axle ⓭ (See Fig. B).
6) Align the groove ⓮ of the switch lever assembly ❹ with the mode detector switch protrusion ⓯, mount it on the axle ⓭, then insert the pin ⓰ into the drive gear (left) assembly ⓱ outer groove.
7) Secure with the stopper washer ❸.
8) Mount the eject lever ❷ and close the claw ❶.
9) Mount the DC motor (capstan motor) as described in section **7-3-3.**

Note: When mounting the switch lever assembly ❹ onto the axle ⓭ with the tension regulator arm assembly installed, set the pin ⓲ to the arrow Ⓐ side of the switch lever assembly ❹.

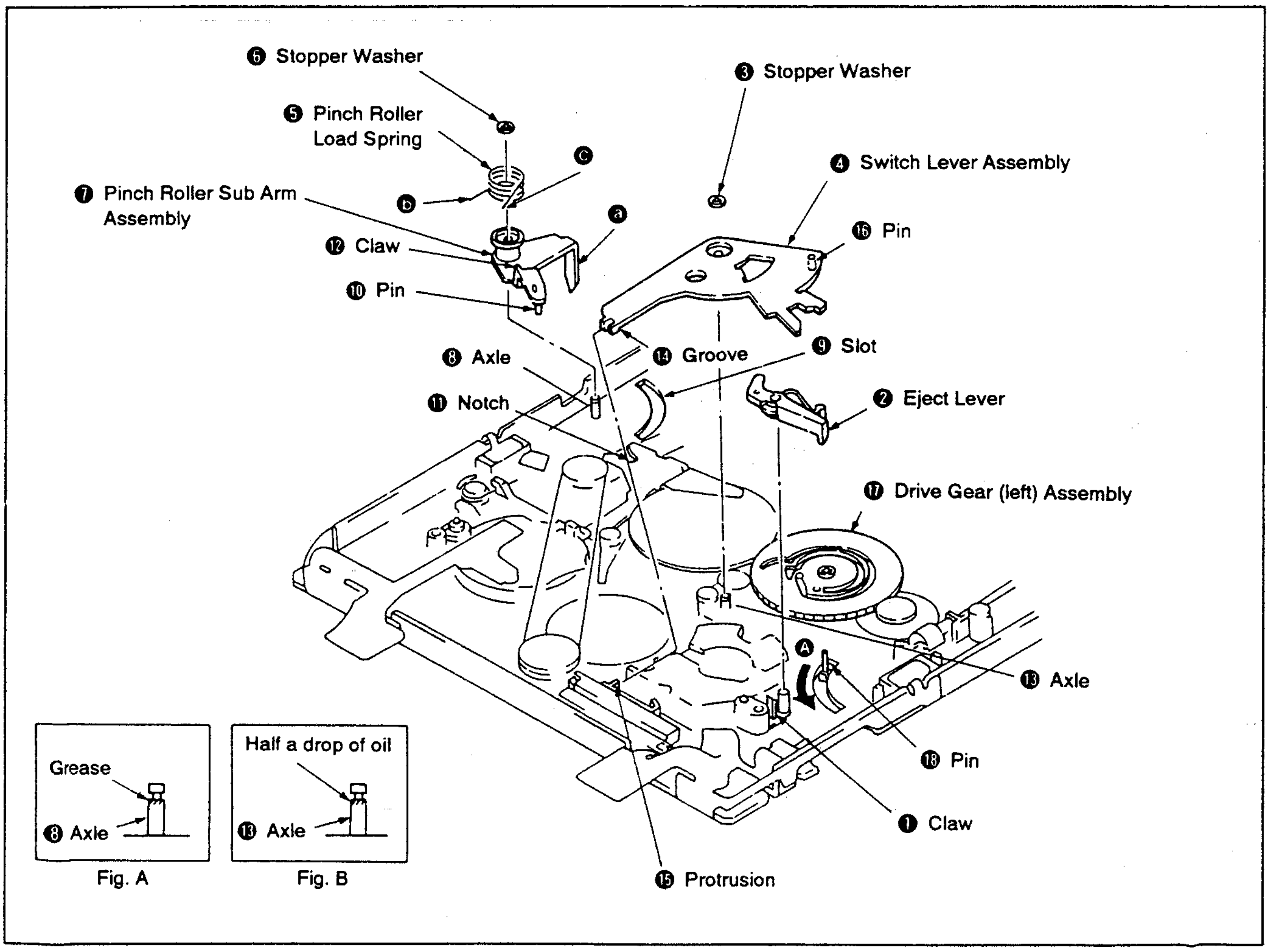

❻ Stopper Washer
❺ Pinch Roller Load Spring
❸ Stopper Washer
❹ Switch Lever Assembly
❼ Pinch Roller Sub Arm Assembly
ⓒ
ⓑ
ⓐ
⓬ Claw
⓰ Pin
❿ Pin
❽ Axle
⓮ Groove
❾ Slot
⓫ Notch
❷ Eject Lever
⓱ Drive Gear (left) Assembly
Ⓐ
⓭ Axle
⓲ Pin
❶ Claw
⓯ Protrusion
Grease
❽ Axle
Half a drop of oil
⓭ Axle

Fig. A

Fig. B

Fig. 7-3-15.

7-3-15. TIMING BELT (L) , RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S), CONNECTING GEAR ASSEMBLY

1. Removal (See Fig. 7-3-16.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Remove the pinch roller sub arm assembly as described in **section 7-3-14.**
3) Set the STOP mode.
4) Remove the stopper washer ❶ , then remove the RC gear assembly ❷ from the axle ❹ with the timing belt (L) ❸ attached.
5) Remove the timing belt (L) ❸ from the idler pulley assembly ❺.
6) Remove the stopper washer ❻ and remove the loading lever assembly ❽ while pushing the claw ❼ in the direction of the arrow Ⓐ.
7) Turn the stopper ❾ approx. 90 ° in the direction of the arrow Ⓑ.
8) Remove the connecting gear assembly ⓫ from the axle ⓰ with the timing belt (S) ❿ attached.
9) Remove the timing belt (S) ❿ from the idler pulley assembly ❺.

Note: When removing the connecting gear ⓫ , take care not touch the flange section ⓑ.

2. Installation (See Fig. 7-3-16.)

1) Apply half a drop of oil to the axle ⓰ (See Fig. F).
2) Hook one end of the timing belt (S) ❿ onto the connecting gear assembly ⓫ and the other end onto gear ⓓ of the idler pulley assembly ❺. (Refer to the figure.)
3) Mount the connecting gear assembly ⓫ with the timing belt (S) ❿ attached to the axle ⓰.
4) Turn the stopper ❾ in the direction of the arrow Ⓒ as far as it will go.
5) Apply half a drop of oil to the axle ⓬ (See Fig. A).
6) Fit the loading lever assembly ❽ to the axle ⓬, secure the ⓐ part with the claw ❼ and place the pin ⓭ into the groove of the drive gear (right) assembly ⓮.
7) Install the stopper washer ❻.
8) Place the timing belt (L) ❸ around the gears of the RC gear assembly ❷ indicated in Fig. B, and its opposite side around the gear ⓒ of the idler pulley assembly ❺. (See Fig. E.)
9) Mount the RC gear assembly ❷ onto the axle ❹ with the timing belt (L) ❸ attached, and engage it with the gear of the RK gear assembly ⓯.
10) Install the stopper washer ❶.
11) Grease parts of the loading lever assembly ❽ indicated in Fig. C.
12) Mount the pinch roller sub arm assembly as described in **section 7-3-14.**
13) Mount the DC motor (capstan motor) as described in section **7-3-3.**

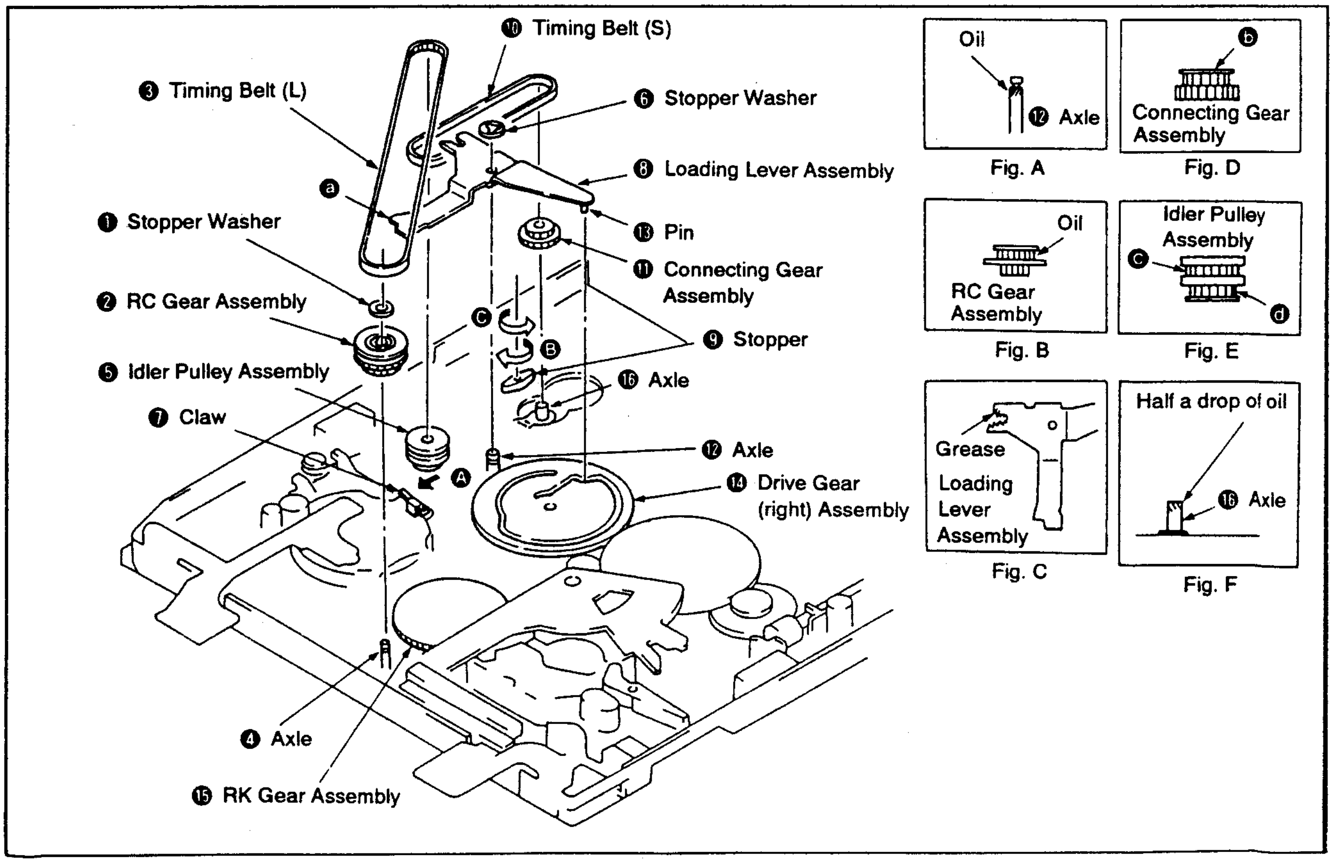

❿ Timing Belt (S)
❸ Timing Belt (L)
❻ Stopper Washer
❽ Loading Lever Assembly
ⓐ
❶ Stopper Washer
⓭ Pin
⓫ Connecting Gear Assembly
❷ RC Gear Assembly
Ⓒ
Ⓑ
❾ Stopper
❺ Idler Pulley Assembly
⓰ Axle
❼ Claw
⓬ Axle
Ⓐ
⓮ Drive Gear (right) Assembly
❹ Axle
⓯ RK Gear Assembly
Oil
⓬ Axle
Fig. A
ⓑ
Connecting Gear Assembly
Fig. D
Oil
RC Gear Assembly
Fig. B
Idler Pulley Assembly
ⓒ
ⓓ
Fig. E
Grease
Loading Lever Assembly
Fig. C
Half a drop of oil
⓰ Axle
Fig. F

Fig. 7-3-16.

7-3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

1. Removal (See Fig. 7-3-17.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Remove the switch lever assembly as described in section **7-3-14.**
3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in **section 7-3-15.**
4) Set the STOP mode.
5) Remove the stopper washer ❶, then remove the idler pulley ❷.
6) Open the claw ❸, then remove the TS brake assembly ❹.
7) Remove the torsion coil spring (LB) ❺.
8) Remove the stopper washer ❻, then remove the LB gear assembly ❼.
9) Remove the RK gear assembly ❽.

Note: When removing the idler pulley ❷, take care not to touch the flange section ⓐ. (See Fig. C.)

2. Installation (See Fig. 7-3-17.)

1) Apply half a drop of oil to the axle ❾ (See Fig. A).
2) Mount the RK gear assembly ❽ onto the axle ❾, keeping it in horizontal position.
3) Apply half a drop of oil to the axle ❿ (See Fig. B).
4) Mount the LB gear assembly ❼ onto the axle ❿ and secure it with the stopper washer ❻.
5) Insert the torsion coil spring (LB) ❺ into the axle ⓫, then hook it to the mechanism chassis notch ⓬ and to the tab ⓭.
6) Mount the TS brake assembly ❹ and close the claw ❸.
7) Apply half a drop of oil to the axle ⓮ (See Fig. D).
8) Mount the idler pulley ❷ onto the axle ⓮, then secure it with the stopper washer ❶.
9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in **section 7-3-15.**
10) Mount the switch lever assembly as described in section **7-3-14.**
11) Mount the DC motor (capstan motor) as described in section **7-3-3.**

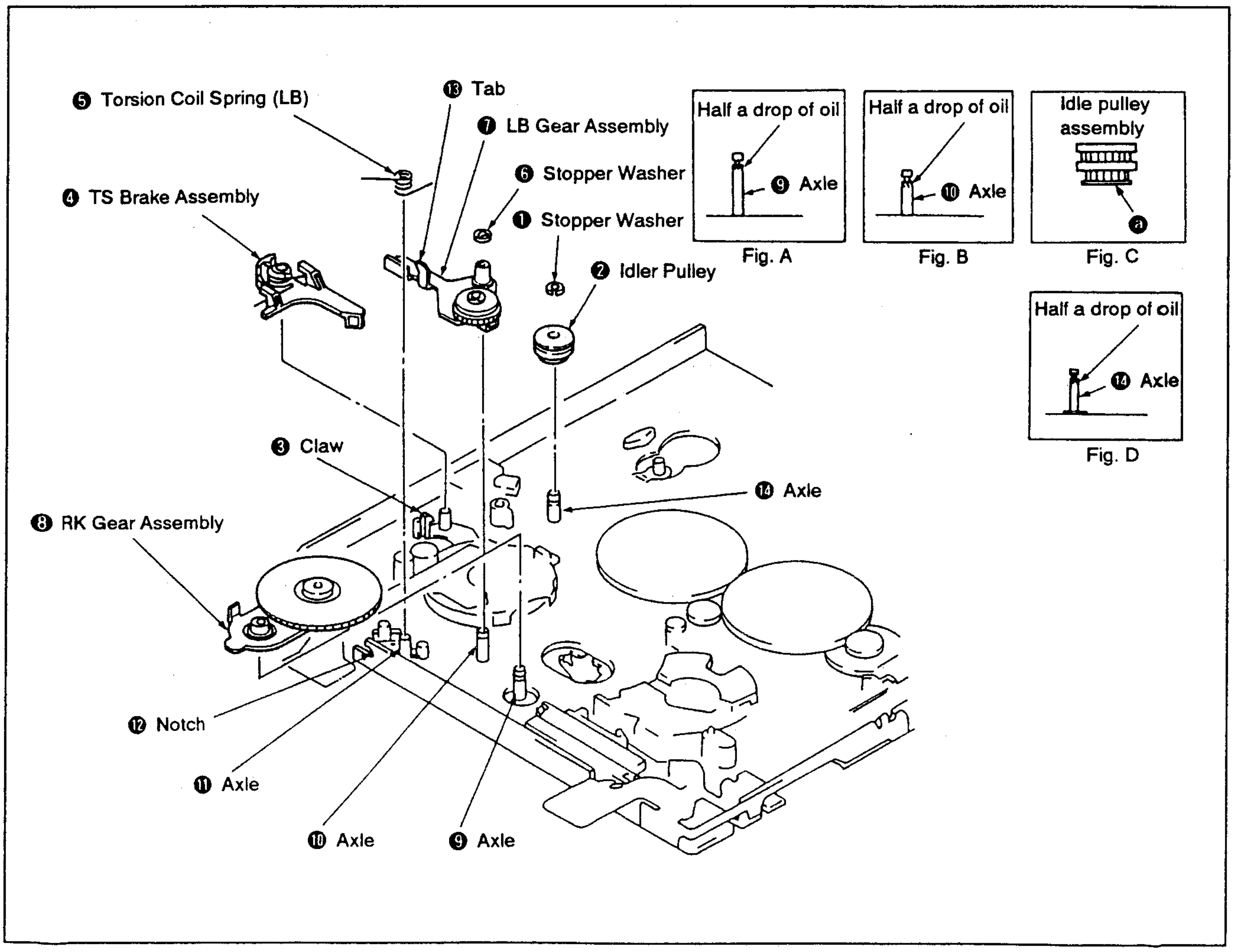

❺ Torsion Coil Spring (LB)
⓭ Tab
❼ LB Gear Assembly
❻ Stopper Washer
❹ TS Brake Assembly
❶ Stopper Washer
❷ Idler Pulley
Half a drop of oil
❾ Axle
Fig. A
Half a drop of oil
❿ Axle
Fig. B
Idle pulley assembly
ⓐ
Fig. C
Half a drop of oil
⓮ Axle
Fig. D
❸ Claw
⓮ Axle
❽ RK Gear Assembly
⓬ Notch
⓫ Axle
❿ Axle
❾ Axle

Fig. 7-3-17.

7-3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

1. Removal (See Fig. 7-3-18.)

1) Remove the switch lever assembly as described in section 7-3-14.
2) Remove the stopper washer ❶, then remove the UL gear ❷.
3) Remove the UL arm ❸, the 1.6 mm-diameter poly washer ❹ and the LB plate spring ❺.
4) Remove the UL brake ❻.

2. Installation (See Fig. 7-3-18.)

1) Mount the UL brake ❻.
2) Apply half a drop of oil to the axle ❼ (See Fig. A).
3) Mount the LB plate spring ❺ to the axle ❼ as shown in Fig. B, then install the 1.6mm-diameter poly washer ❹.
4) Mount the UL arm ❸ to the axle ❼ so that the protrusion ❽ comes into the groove ❾ of the UL brake ❻.
5) Mount the UL gear ❷ to the axle ❼ and engage it with the gear of the drive gear (left) assembly ❿.
6) Install the stopper washer ❶.
7) Mount the switch lever assembly as described in section 7-3-14.

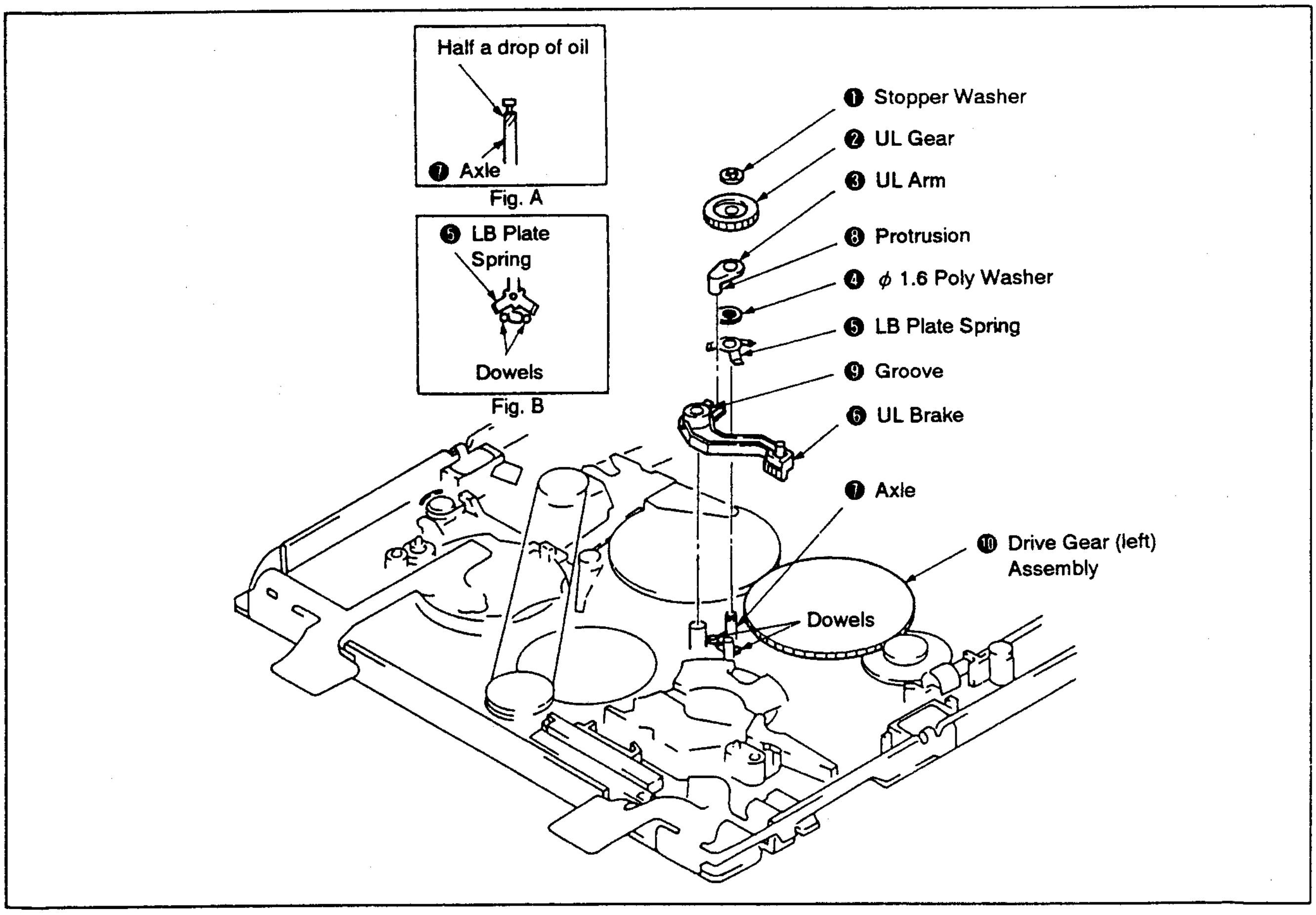

Half a drop of oil
❼ Axle
Fig. A
❺ LB Plate Spring
Dowels
Fig. B
❶ Stopper Washer
❷ UL Gear
❸ UL Arm
❽ Protrusion
❹ ϕ 1.6 Poly Washer
❺ LB Plate Spring
❾ Groove
❻ UL Brake
❼ Axle
❿ Drive Gear (left) Assembly
Dowels

Fig. 7-3-18.

7-3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

1. Removal (See Fig. 7-3-19.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Remove the drum unit as described in **section 7-3-13.**
3) Remove the switch lever assembly as described in section 7-3-14.
4) Remove the timing belt (L) , the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
5) Set the STOP mode.
6) Remove the screw ❶ , then remove the coaster plate spring ❷ and the coaster (right) assembly ❸ .
7) Remove the two screws ❹ , then remove the reinforcing plate TT ❺ .
8) Remove the stopper washer 1.5 ❻ , then remove the drive gear (right) assembly ❼ .

2. Installation (See Fig. 7-3-19.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. F).
3) Grease pin ❾ , axle ❿ and dowel ⓮ of the coaster (right) assembly ❸ (See Fig. D).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Move the brake release arm ⓬ in the direction of the arrow Ⓐ to put it out of the way.
6) Mount the drive gear (right) assembly ❼ to the axle ❽ , and engage it with the drive gear (left) assembly ⓭ as shown in Fig. B.
7) Align the ⓐ part with the ⓑ part, and the hole ⓮ with the pin ❾ of the coaster (right) assembly ❸ .
8) Install the stopper washer 1.5 ❻ .
9) Mount by aligning the coaster plate spring ❷ with the axle ❿ of the coaster (right) assembly ❸ and pin ❾ , then secure with the screw ❶ .
10) Mount the reinforcing plate TT ❺ aligning it with the dowel ⓯ , then tighten the two screws ❹ in the indicated order.
11) Grease the points indicated in Figs. C and E.
12) Mount the timing belt (L) , the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
13) Mount the switch lever assembly as described in section 7-3-14.
14) Mount the drum unit as described in **section 7-3-13.**
15) Mount the DC motor (capstan motor) as described in section 7-3-3.

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in **section 7-5.**

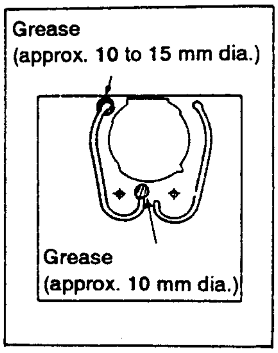

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)

Fig. A

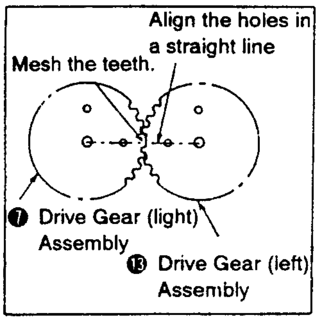

Align the holes in a straight line
Mesh the teeth.
❼ Drive Gear (light) Assembly
⓭ Drive Gear (left) Assembly

Fig. B

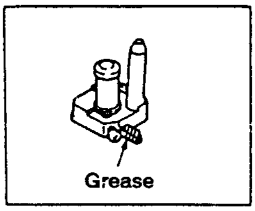


Fig. C

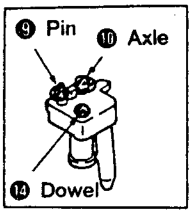

❾ Pin
❿ Axle
⓮ Dowel

Fig. D

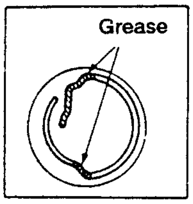


Fig. E

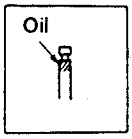


Fig. F

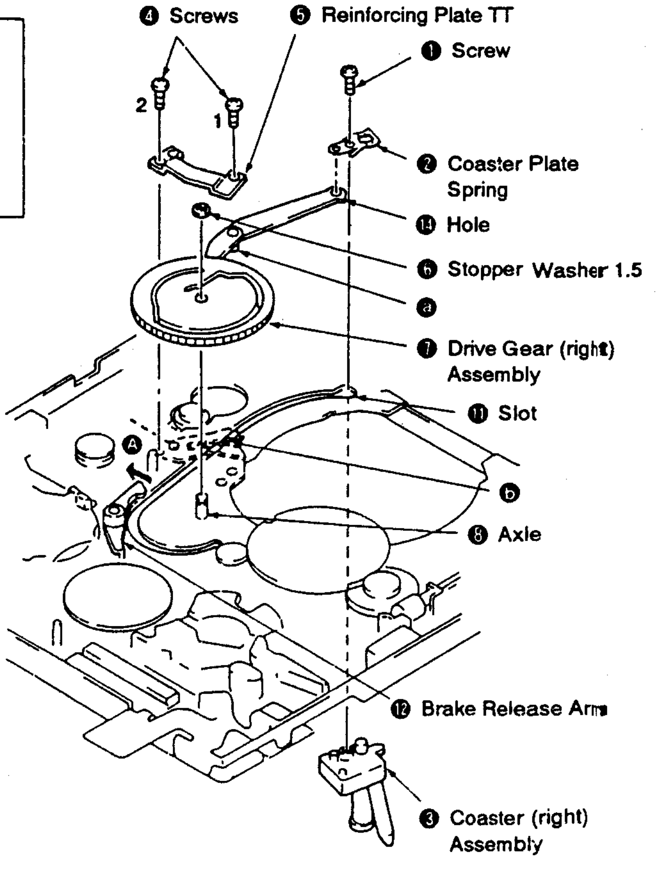

❹ Screws
❺ Reinforcing Plate TT
❶ Screw
2
1
❷ Coaster Plate Spring
⓮ Hole
❻ Stopper Washer 1.5
ⓐ
❼ Drive Gear (right) Assembly
⓫ Slot
Ⓐ
ⓑ
❽ Axle
⓬ Brake Release Arm
❸ Coaster (right) Assembly

Fig. 7-3-19.

7-3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

1. Removal (See Fig. 7-3-20.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Remove the drum assembly as described in **section 7-3-13.**
3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in **section 7-3-14.**
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
5) Remove the coaster (right) assembly and the drive gear (right)assembly as described in **section 7-3-18.**
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (left) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate SS assembly ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (left) assembly ❼.

2. Installation (See Fig. 7-3-20.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. E).
3) Grease pin ❾, axle ❿ and dowel ⓰ of the coaster (left) assembly ❸ (See Fig. B).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Fit the drive gear (left) assembly ❼ to the axle ❽, and mount so that the gear engages with the wheel gear ⓭ and the UL gear ⓮.
6) Align the ⓐ part with the slot ⓫, and the hole ⓮ with the pin ❾ of the coaster (left) assembly ❸.
7) Install the stopper washer 1.5 ❻.
8) Mount by aligning the coaster plate spring ❷ with the axle ❿ and pin ❾ of the coaster (left) assembly ❸, then secure with the screw ❶.
9) Mount the reinforcing plate SS assembly ❺ aligning it with the dowel ⓯, then tighten the two screws ❹ in the indicated order.
10) Grease points indicated in Figs. C and D.
11) Mount the coaster (right) assembly and the drive gear (right)assembly as described in **section 7-3-18.**
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in **section 7-3-14.**
14) Mount the drum assembly as described in **section 7-3-13.**
15) Mount the DC motor (capstan motor) as described in section **7-3-3.**

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in **section 7-5.**

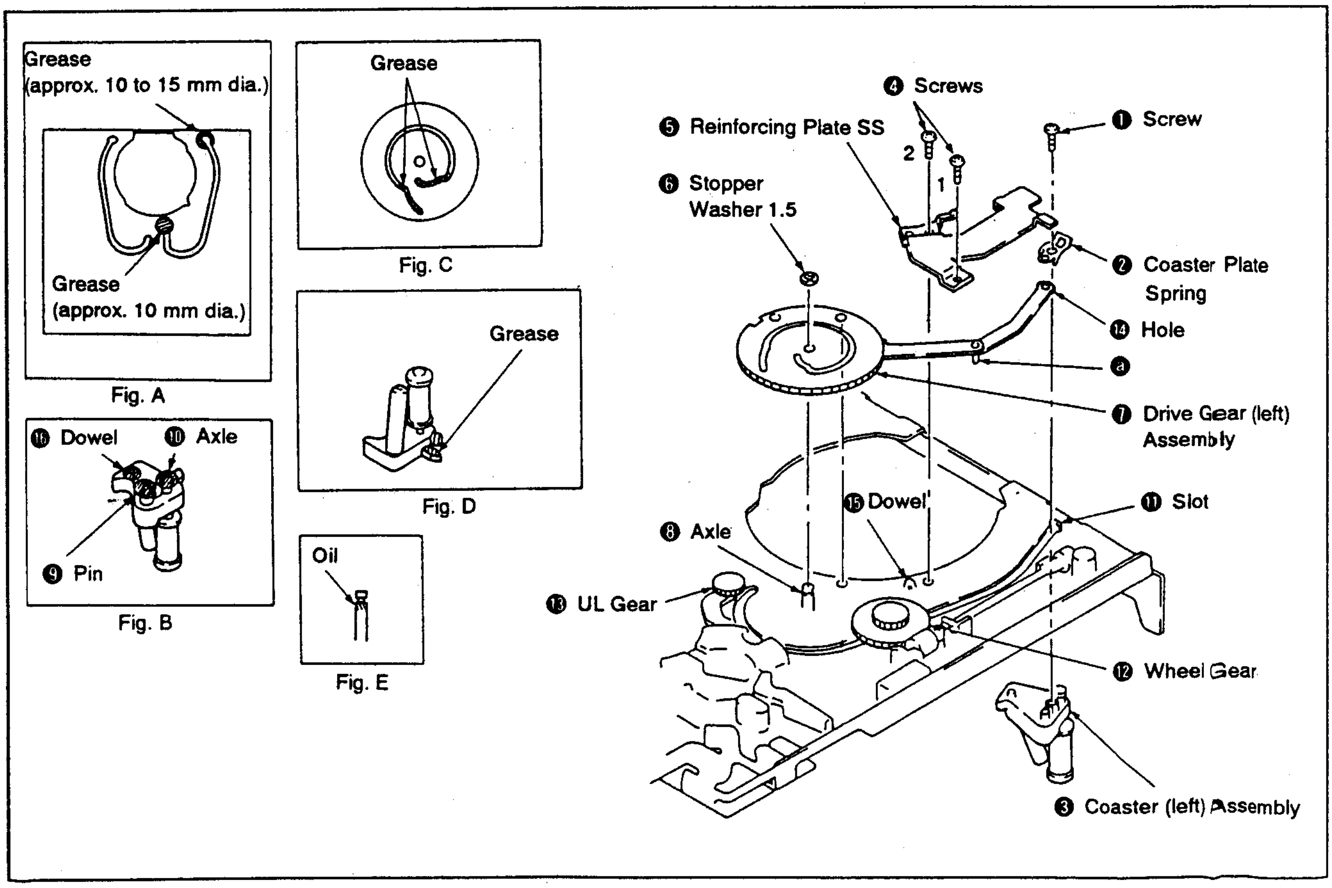

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)
Fig. A
⓰ Dowel
❿ Axle
❾ Pin
Fig. B
Grease
Fig. C
Grease
Fig. D
Oil
Fig. E
❹ Screws
❺ Reinforcing Plate SS
2
1
❶ Screw
❻ Stopper Washer 1.5
❷ Coaster Plate Spring
⓮ Hole
ⓐ
❼ Drive Gear (left) Assembly
⓯ Dowel
❽ Axle
⓫ Slot
⓭ UL Gear
⓬ Wheel Gear
❸ Coaster (left) Assembly

Fig. 7-3-20.

7-3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

1. Removal (See Fig. 7-3-21.)

1) Remove the DC motor (capstan motor) as described in **section 7-3-3.**
2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in **section 7-3-14.**
3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
4) Remove the drive gear (right) assembly as described in **section 7-3-18.**
5) Remove the drive gear (left) assembly as described in **section 7-3-19.**
6) Remove the two screws ❶, then remove the loading motor assembly ❷.
7) Remove the brake release arm ❸.
8) Remove the stopper washer ❹, then remove the wheel gear ❺.
9) Remove the worm assembly ❻ from the six claws ❼.

2. Installation (See Fig. 7-3-21.)

1) Mount the worm assembly ❻, matching it to the six claws ❼.
2) Grease the shaded parts of the worm assembly ❻ (five places) (see Fig A).
3) Apply half a drop of oil to the axle ❽ (See Fig. B).
4) Fit the wheel gear ❺ to the axle ❽ and engage it with the gear of the worm assembly ❻.
5) Mount the brake release arm ❸.
6) Grease the whole perimeter of the gear of the loading motor assembly ❷.
7) Align the loading motor assembly ❷ with the mechanism chassis and secure it with the two screws ❷.
8) Mount the drive gear (left) assembly as described in section **7-3-19.**
9) Mount the drive gear (right) assembly as described in **section 7-3-18.**
10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in **section 7-3-15.**
11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in **section 7-3-14.**
12) Mount the DC motor (capstan motor) as described in section **7-3-3.**

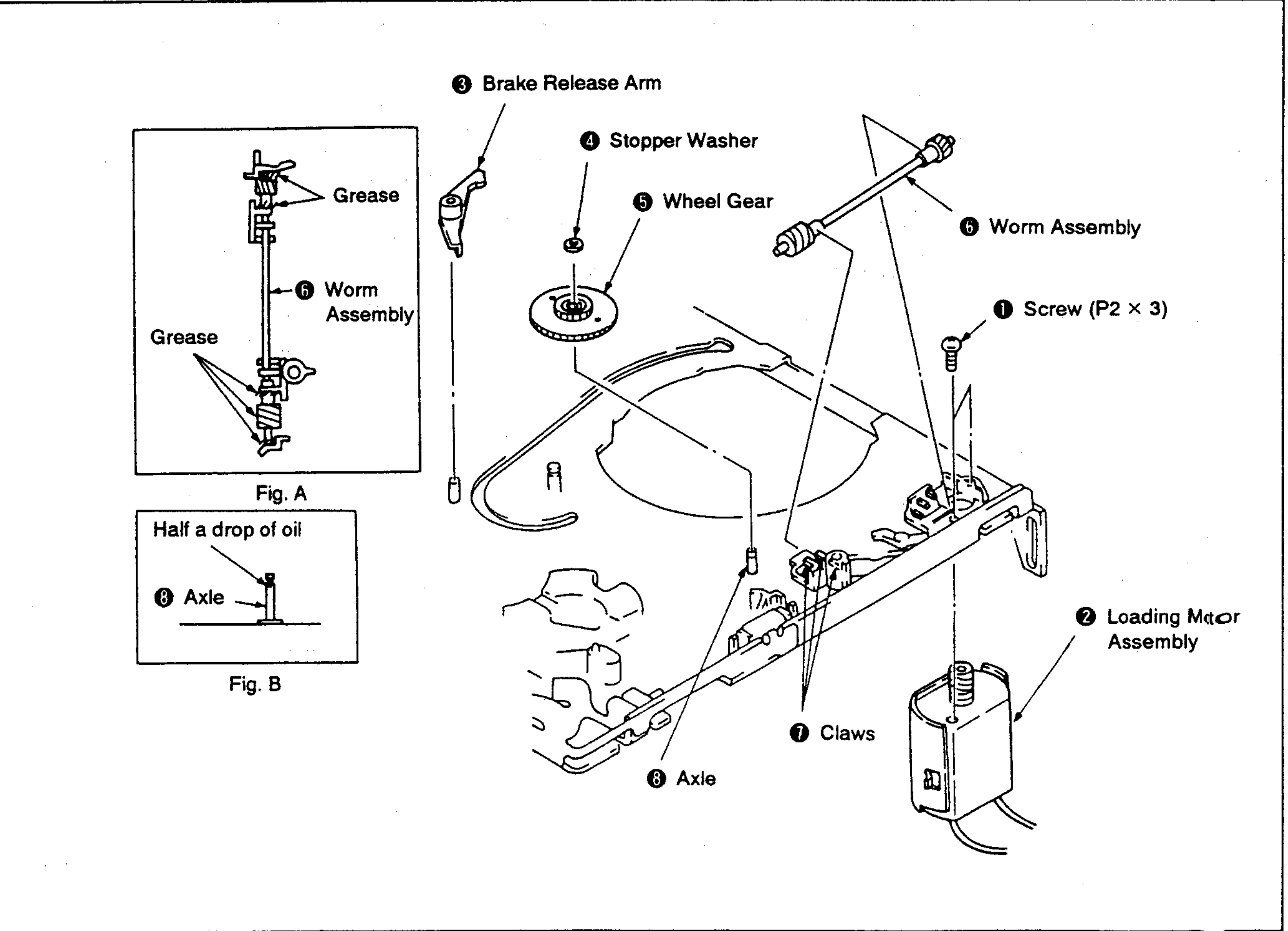

Grease
❻ Worm Assembly
Grease
Fig. A
Half a drop of oil
❽ Axle
Fig. B
❸ Brake Release Arm
❹ Stopper Washer
❺ Wheel Gear
❻ Worm Assembly
❶ Screw (P2 × 3)
❷ Loading Motor Assembly
❼ Claws
❽ Axle

Fig. 7-3-21.

7-3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removal

- If possible, make a recording before removal.

1) Detach the six solderings ⓐ, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
2) Remove the two screws ❶ (See **Fig. 7-3-22**).
3) Mount the jig ❹ (Ref. No. J-7) with the two supplied screws ❷, then screw the attached hexagon socket screws ❸ to the jig ❹. The rotary upper drum ❺ will move upward and come off (See **Fig. 7-3-23**).

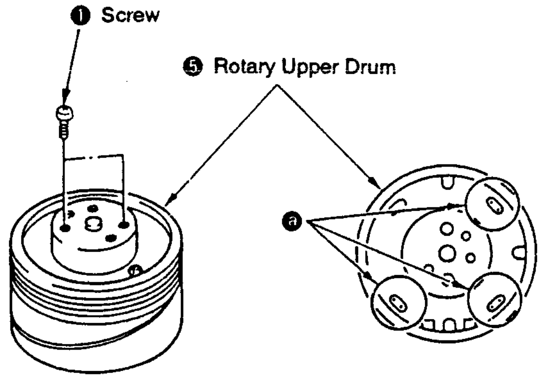


Fig. 7-3-22.

2. Installation

1) Wipe clean the flange surface and the rotary upper drum ❺ surface that makes contact with it, and confirm that they are free from dirt and scratches.
2) Insert the jig ❼ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ❺ by passing the jig through its positioning hole ❻.
   Note: Confirm that the terminals ❽ protrude slightly from the rotary upper drum board holes (See **Fig. 7-3-24**).
3) Remove the jig ❼ and push down the rotary upper drum ❺ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ❶ alternately.
4) Insert the jig ❼ into the positioning hole ❻ again and confirm that it goes in smoothly. If it does not, loosen the two screws ❶, repeat step 3 of the Removal paragraph and restart the setting procedure.
5) Tighten the screws ❶.
6) Solder the terminals ❽ (ⓐ in **Fig. 7-3-22**).
   Note: Take care that no solder flows below the board.

Note: After installing, be sure to perform tape path adjustment as described in **section 7-4**.

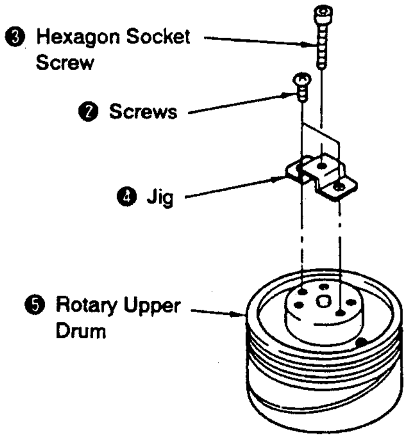


Fig. 7-3-23.

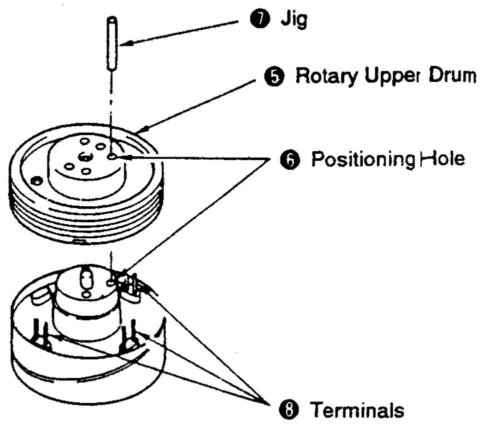


Fig. 7-3-24.

7-3-22. FWD BACK TENSION (See Fig. 7-3-25.)

1) Set the torque cassette (Ref. No. J-6).
2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g•cm.
3) If the torque value does not meet the specification, adjust the adjust arm ❶.

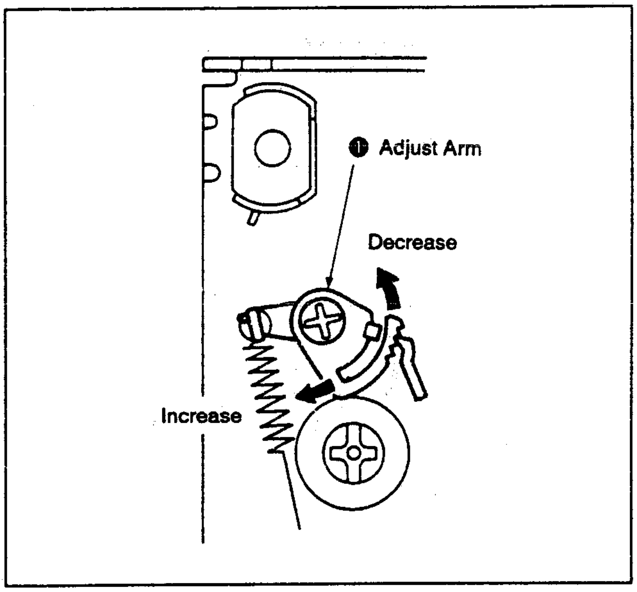


Fig. 7-3-25.

7-3-23. REEL TORQUE CHECK

1) Set the torque cassette.
2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g•cm.
3) Set the REV mode and confirm that S reel table torque value is within 29 ± 6 g•cm.
4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g•cm.
5) If a torque value does not meet the specifications above, replace the corresponding reel table.

7-4. TAPE PATH ADJUSTMENT

[The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

7-4-1. SETTING THE TRACK SHIFT MODE

[Setting Method]

1) **Connect the pin ① (K IN 5) and pin ② (K OUT 6), pin ③ (K IN 4) of the FC-26P board CN096. (Refer to Fig. 7-4-1.)**

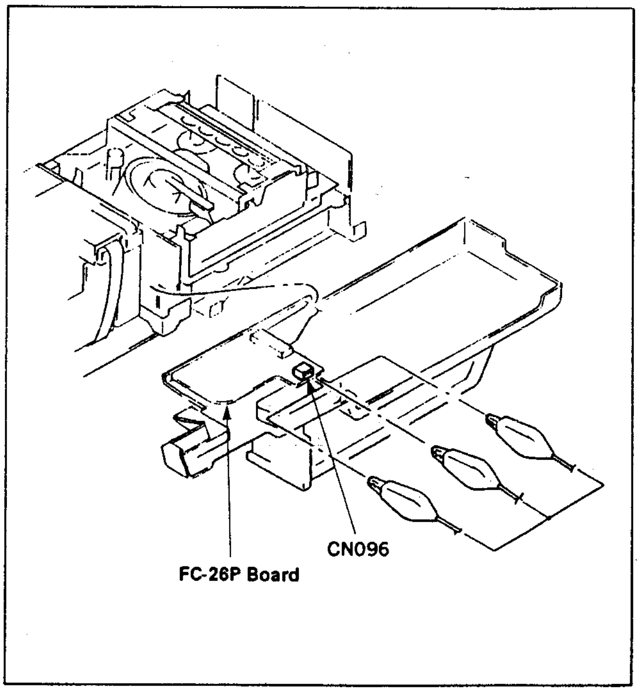
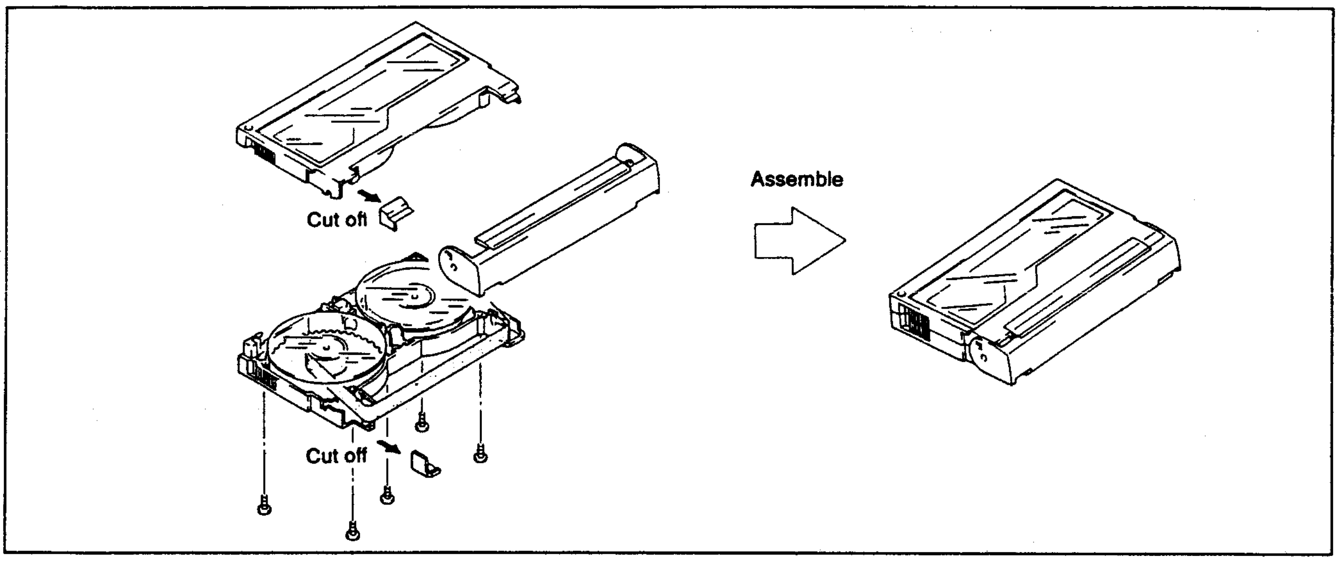


Fig. 7-4-1.

[Note on Adjustment of No.7 Guide (TG-7)]

The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide **(Refer to Fig. 7-4-2.)**
Therefore, when performing **section 7-4-6.** No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.


Cut off
Assemble
Cut off

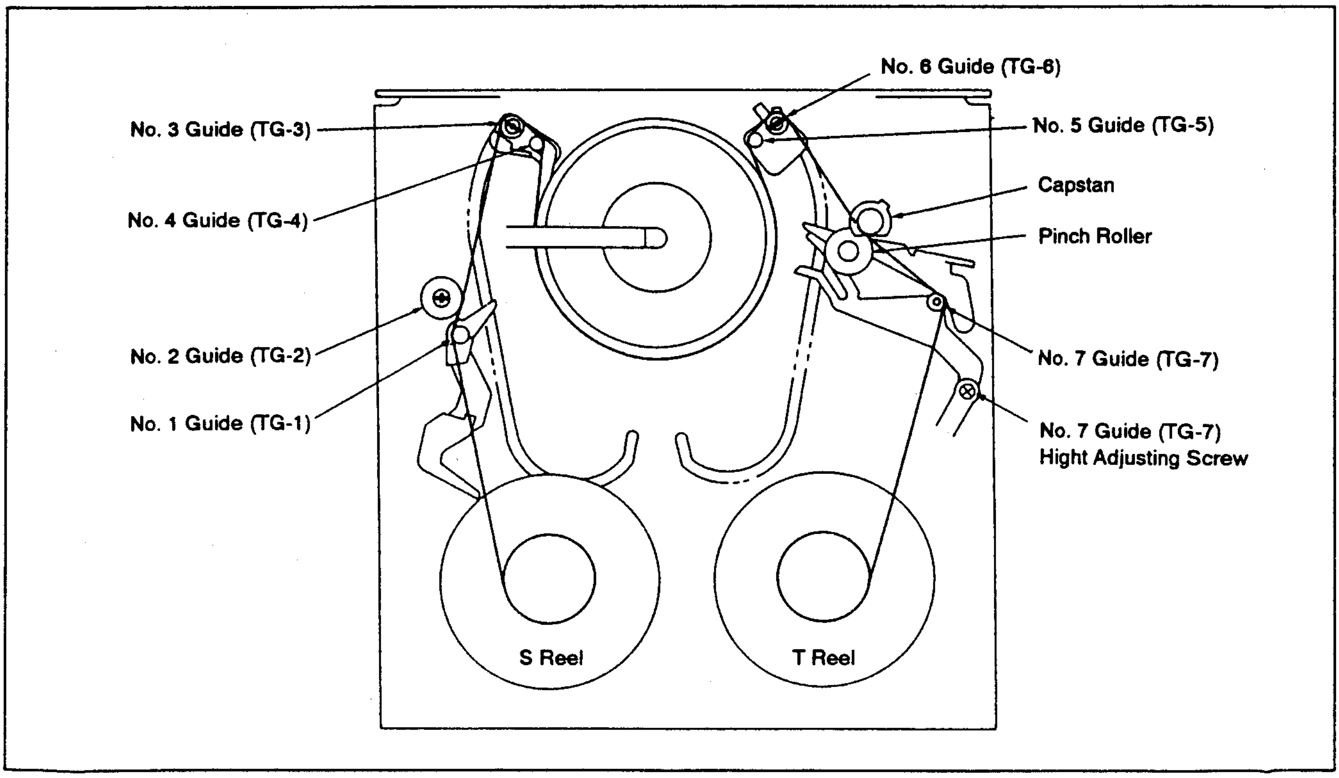

No. 6 Guide (TG-6)
No. 3 Guide (TG-3)
No. 5 Guide (TG-5)
Capstan
No. 4 Guide (TG-4)
Pinch Roller
No. 2 Guide (TG-2)
No. 7 Guide (TG-7)
No. 1 Guide (TG-1)
No. 7 Guide (TG-7)
Hight Adjusting Screw
S Reel
T Reel

Fig. 7-4-2.

7-4-2. PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guide, drum, capstan shaft, pinch roller.)
2) Connect to the oscilloscope.
   MR-16P board CN802 pins ④ (RF CH 2), ⑥ (GND)
   External trigger : Pin ② (WR5-1NP)
3) Play back the tracking alignment tape (WR5-1NP) (Ref. No. J-5).
4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet sides. When not flat, make adjustment as follows. **(Refer to Figs. 7-4-3 and 7-4-4.)**

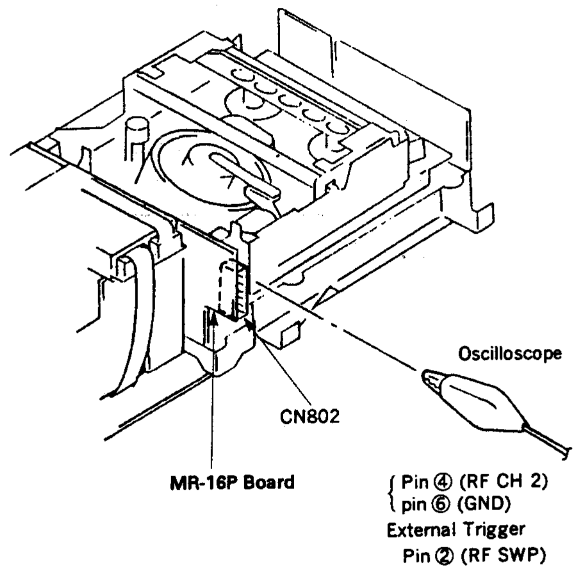

Oscilloscope
CN802
MR-16P Board
Pin ④ (RF CH 2)
pin ⑥ (GND)
External Trigger
Pin ② (RF SWP)

Fig. 7-4-3.

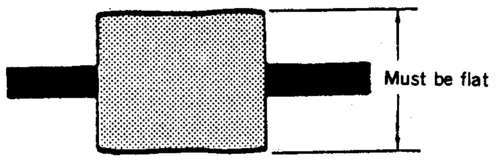

Must be flat

Fig. 7-4-4.

7-4-3. TRACKING ADJUSTMENT (See Fig. 7-4-5.)

1) Play back the alignment tape for tracking adjustment.
2) Pass a screwdriver through the hole ❶, loosen the lockscrew ❷ a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ❸.
3) Pass a screwdriver through the hole ❹, loosen the lockscrew ❺ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ❻.

Note: Take care not to loosen lockscrews too much, since guides come loose easily.

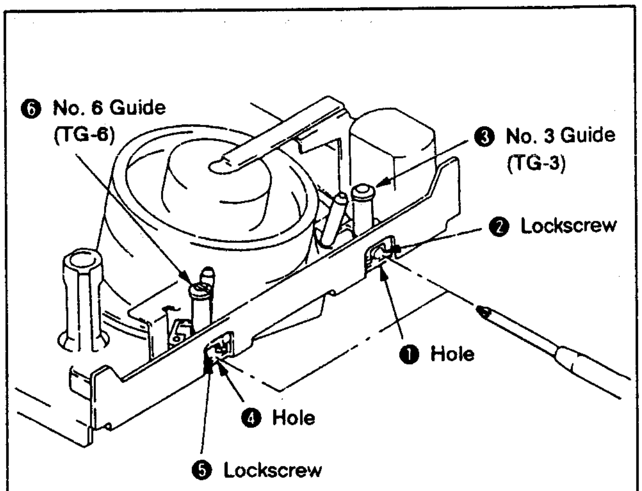

❻ No. 6 Guide (TG-6)
❸ No. 3 Guide (TG-3)
❷ Lockscrew
❶ Hole
❹ Hole
❺ Lockscrew

Fig. 7-4-5.

7-4-4. TRACKING FINE ADJUSTMENT (See Figs. 7-4-5. and 7-4-6.)

1) Play back the alignment tape for tracking adjustment and set the track shift mode.
2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
3) Fix the No. 3 guide ❸ by tightening its lockscrew ❷. Then confirm that the entrance side waveform has not changed.
4) Fix the No. 6 guide ❻ by tightening its lockscrew ❺. Then confirm that the exit side waveform has not changed.

Note: The set screws ❷ and ❺ should be tightened with a tightening torgue of approx. 200g•cm ± 10%.
If tightened too much, there is danger of damaging the thread.

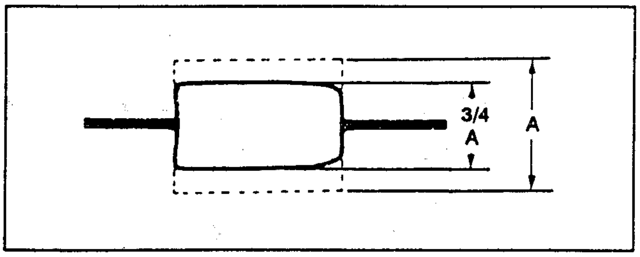


Fig. 7-4-6.

7-4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

7-4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 7-4-7.)

1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by rotating the TG-2 upper flange ❶.

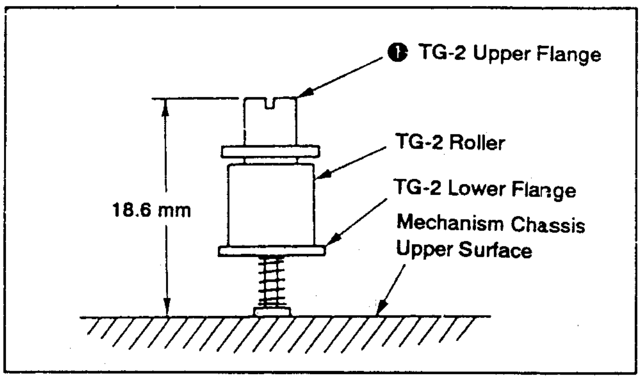


Fig. 7-4-7.

[Reference]
This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7) . To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

7-4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 7-4-8. and 7-4-9.)

1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
2) Confirm that the tape is not bent at the lower flange ❷ of the No. 2 guide (TG-2) ❶ (See Fig. 7-4-8). If it is, turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ clockwise with a screwdriver, lowering it until the tape is straightened.
3) Play back the alignment tape for tracking adjustment.
4) Perform tracking adjustment and tracking fine adjustment as described in **sections 7-4-3. and 7-4-4.**
5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
6) If the waveform is not normal (**See Fig. 7-4-9**). turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ 90° counter-clockwise and repeat step 5.
   Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

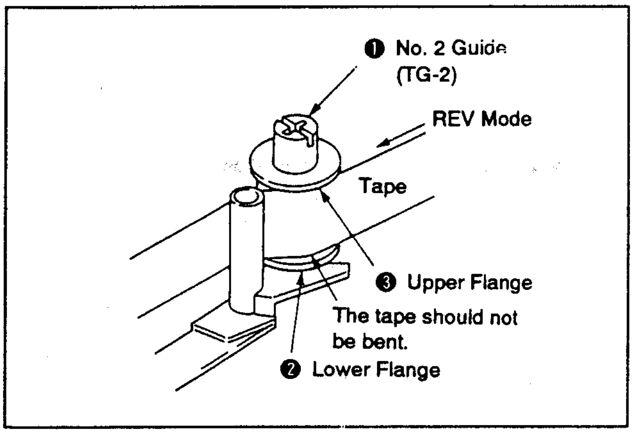

❶ No. 2 Guide (TG-2)
REV Mode
Tape
❸ Upper Flange
The tape should not be bent.
❷ Lower Flange

Fig. 7-4-8.

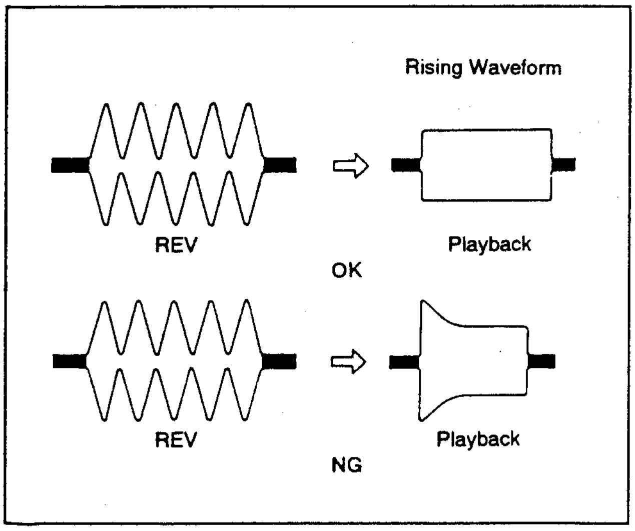

Rising Waveform
REV
Playback
OK
REV
Playback
NG

Fig. 7-4-9.

7-4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 7-4-10.)

1) Play back the alignment tape for tracking adjustment and set the REV mode.
2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ❶ and the capstan ❷ . If it is, turn the hight adjusting screw ❹ of the No. 7 guide (TG-7) ❸ until the tape is straightened.
3) Set the playback mode again and confirm that the tape is not bent between the capstan ❷ and the hight adjusting screw ❹ of the No. 7 guide (specification:0.5 mm or less) . If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ❸ until bending is within the specification (0.5 mm).
   If in the REV mode tape bending between the No. 6 guide (TG-6) ❶ and the capstan ❷ is 0.3 mm or less, adjustment can be considered completed.

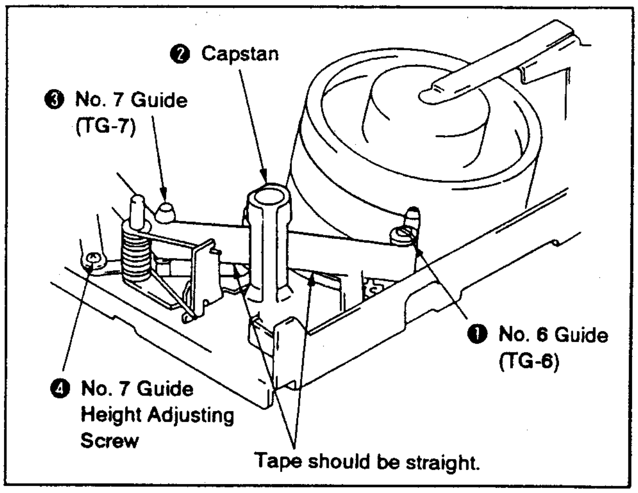

❷ Capstan
❸ No. 7 Guide (TG-7)
❶ No. 6 Guide (TG-6)
❹ No. 7 Guide Height Adjusting Screw
Tape should be straight.

Fig. 7-4-10.

7-4-7. CUE AND REV WAVEFORM CHECK (See Fig. 7-4-11.)

1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 7-4-11).
In case pitch is not constant, perform section 7-4-5. Tracking Fine Adjustment and section 7-4-6. No. 7 Guide Adjustment.
2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 7-4-11). Otherwise, perform section 7-4-4. Tracking Fine Adjustment.

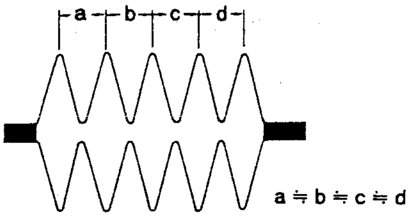


Fig. 7-4-11.

7-4-8. CHECK AFTER ADJUSTMENT

7-4-8-1. Tracking Check

1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 7-4-12).
2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 7-4-13).
3) Confirm that no large fluctuations occur on the waveform (See Fig. 7-4-14).

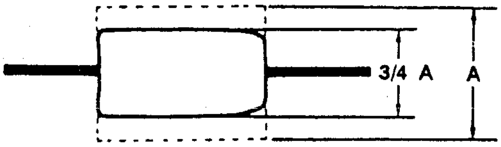


Fig. 7-4-12.

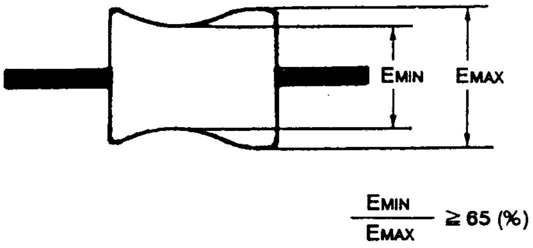


Fig. 7-4-13.

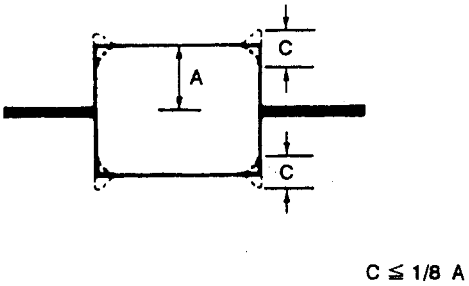
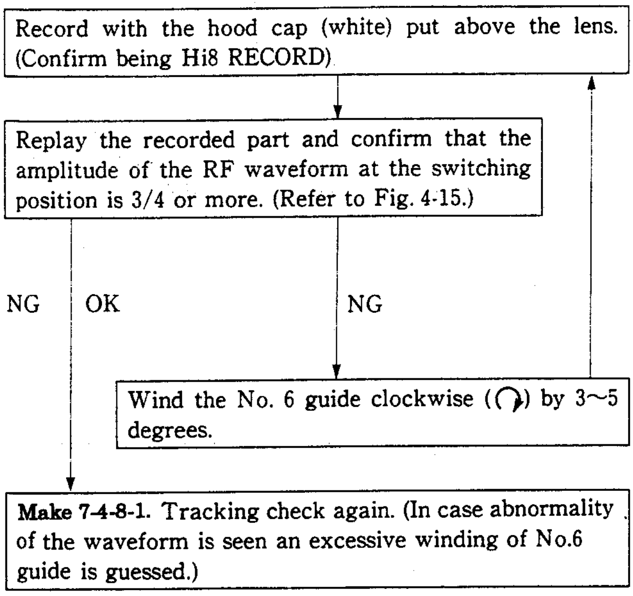


Fig. 7-4-14.

7-4-8-2. Tracking Check with ME Tape

Note : 1) **Please use a E5-120 tape.**

2) Please make RECORD & REPLAY with the Tape-top—Tape-middle part

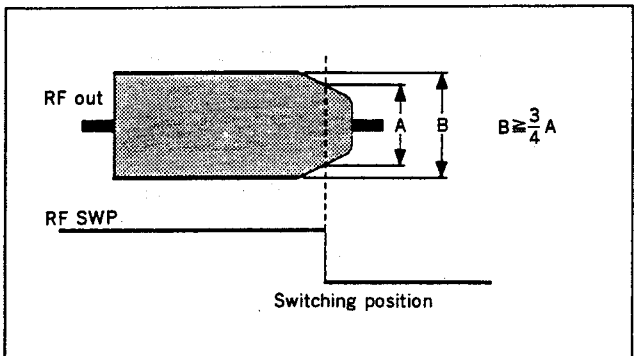


Record with the hood cap (white) put above the lens. (Confirm being Hi8 RECORD)

Replay the recorded part and confirm that the amplitude of the RF waveform at the switching position is 3/4 or more. (Refer to Fig. 4-15.)

Wind the No. 6 guide clockwise (↻) by 3~5 degrees.

Make 7-4-8-1. Tracking check again. (In case abnormality of the waveform is seen an excessive winding of No.6 guide is guessed.)


RF out
A
B
$B \geq \frac{3}{4} A$
RF SWP
Switching position

Both of 1 CH and 2 CH must be in the specification.

Fig. 7-4-15.

7-4-8-3. Rising Check (See Fig. 7-4-16.)

1) Play back the alignment tape for tracking adjustment.
2) Cancel the track shift mode.
3) Eject the tape, then load it again.
4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See **Fig. 7-4-16**).
5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
6) Repeat steps 3) to 5) once more.

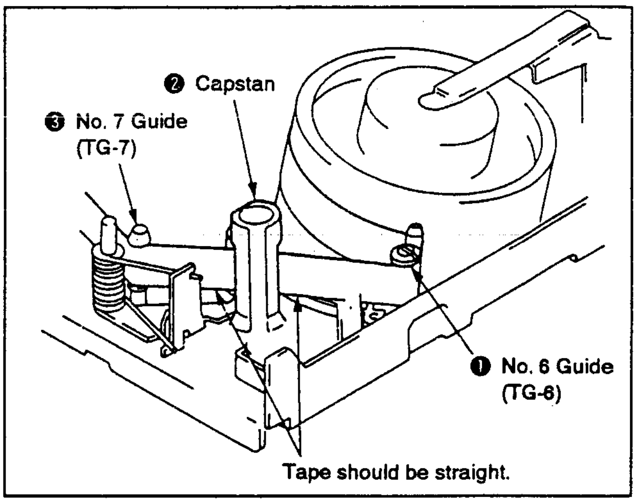

❷ Capstan
❸ No. 7 Guide
(TG-7)
❶ No. 6 Guide
(TG-6)
Tape should be straight.

Fig. 7-4-16.

7-4-8-4. Tape Path Check (See Fig. 7-4-17.)

1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

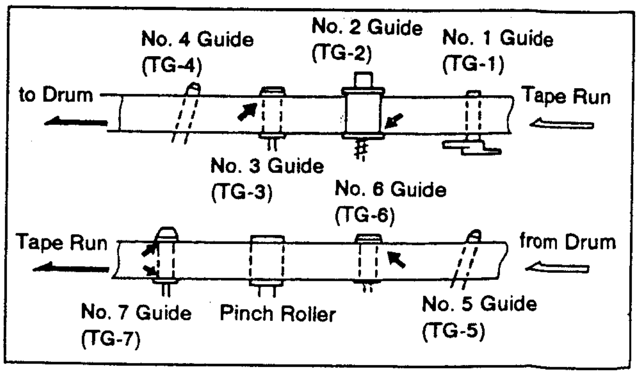

No. 4 Guide
(TG-4)
No. 2 Guide
(TG-2)
No. 1 Guide
(TG-1)
to Drum
Tape Run
No. 3 Guide
(TG-3)
No. 6 Guide
(TG-6)
Tape Run
from Drum
No. 7 Guide
(TG-7)
Pinch Roller
No. 5 Guide
(TG-5)

Fig. 7-4-17.

SECTION 8
CAMERA ADJUSTMENTS

See the adjusting part location diagram from on page 268 for the adjustment.

8-1. PREPARATION FOR ADJUSTMENT (CAMERA BLOCK)

8-1-1. List of Servicing Jigs

- Oscilloscope
- Stabilized power supply (2 units)
- Adjusting screwdriver
- Stop watch
- Color monitor TV
- Vectorscope
- Desk-top calculator

Ref. No.	Name	Part No.	Use
J-1	Filter (C14)	J-6080-054-A	Auto white balance adjustment
J-2	ND filter 0.4	J-6080-806-A	Iris adjustment, Iris IN/OUT adjustment (2 pcs. used), Max. gain adjustment, Auto Focus Adjustment
	ND filter 0.1	J-6080-807-A	Iris adjustment, Max. gain adjustment, Iris IN/OUT adjustment
	ND filter 1.0	J-6080-808-A	Max. gain adjustment (2 pcs. used), Auto Focus Adjustment
J-3	Pattern box PTB-500	J-6029-140-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Extension cable (4P, 1.5 mm pitch)	J-6082-069-A	To connect VC-55P board and VI-71 board
	Extension cable (6P, 1.5 mm pitch)	J-6082-036-A	To connect DC-DC converter and VC-54P board
J-6	Extension cable (20P, 1 mm pitch)	J-6082-031-A	To connect VC-54P board and AF-47P board, and FD-14P board and VI-54 board
	Extension cable (8P, 1.25 mm pitch)	J-6082-032-A	To connect SS-96P board and DC-DC converter
	Extension cable (5P, 1.25 mm pitch)	J-6082-034-A	To connect FD-14P board and AF-47P board
	Extension cable (7P, 1.25 mm pitch)	J-6082-033-A	To connect FD-14P board and DC-DC converter
J-7	Extension cable (6P, 1 mm pitch)	J-6082-018-A	To connect SW-94P board and FD-14P board
J-8	Extension cable (11P, 1 mm pitch)	J-6082-013-A	To connect FD-14P board and SS-96P board
	Extension cable (18P, 1 mm pitch)	J-6082-030-A	To connect FD-14P board and VC-55P board
J-9	Camera fixing jig	J-6080-894-A	
J-10	Siemens-star	J-6080-875-A	Flange back adjustment
J-11	Adjustment remote control	J-6082-053-A	RM-95 partly remodeled Product
J-12	AF microcomputer data reader jig	J-6082-025-A	

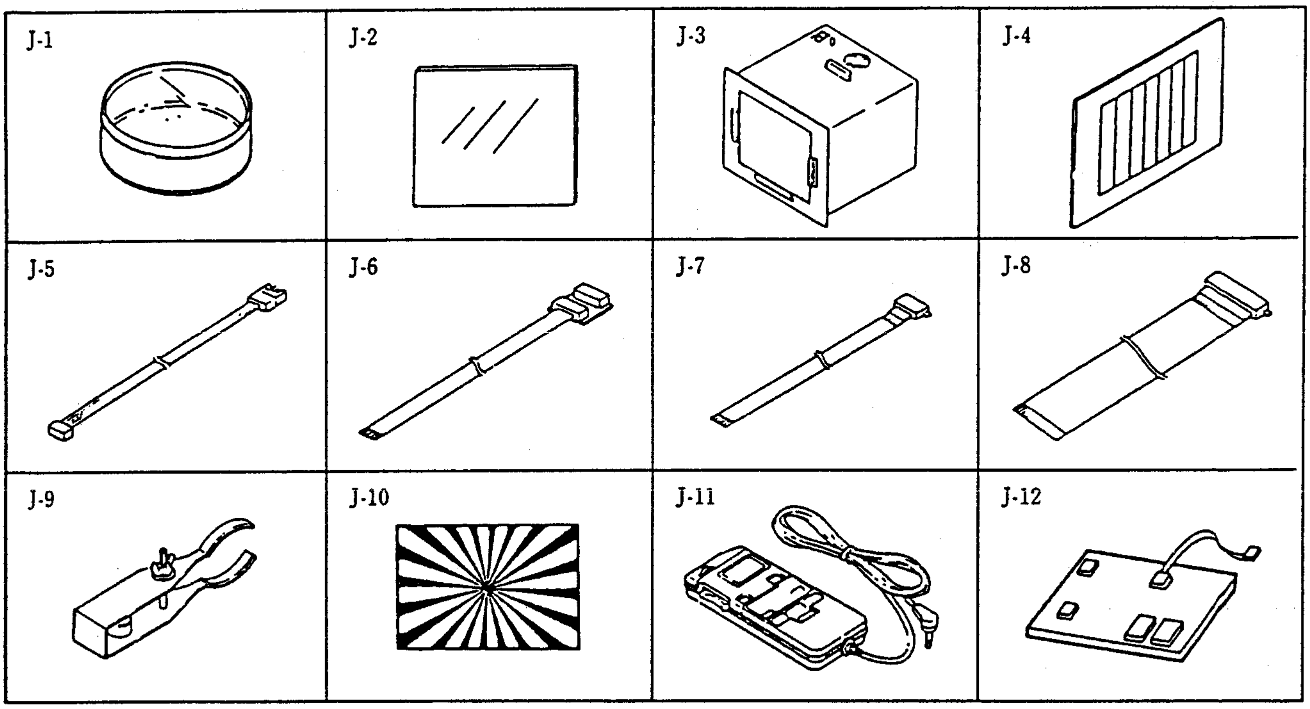

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12

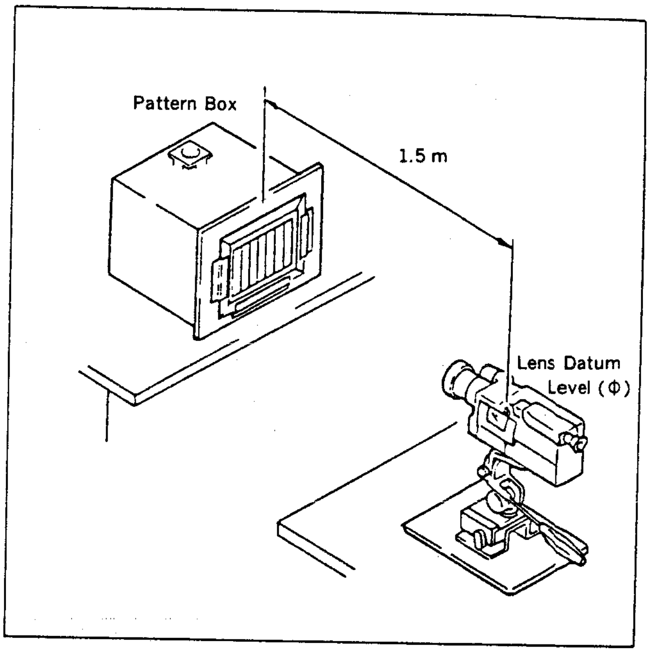
Fig. 8-1.

8-2. PREPARATION FOR ADJUSTMENT

8-2-1. Preparation

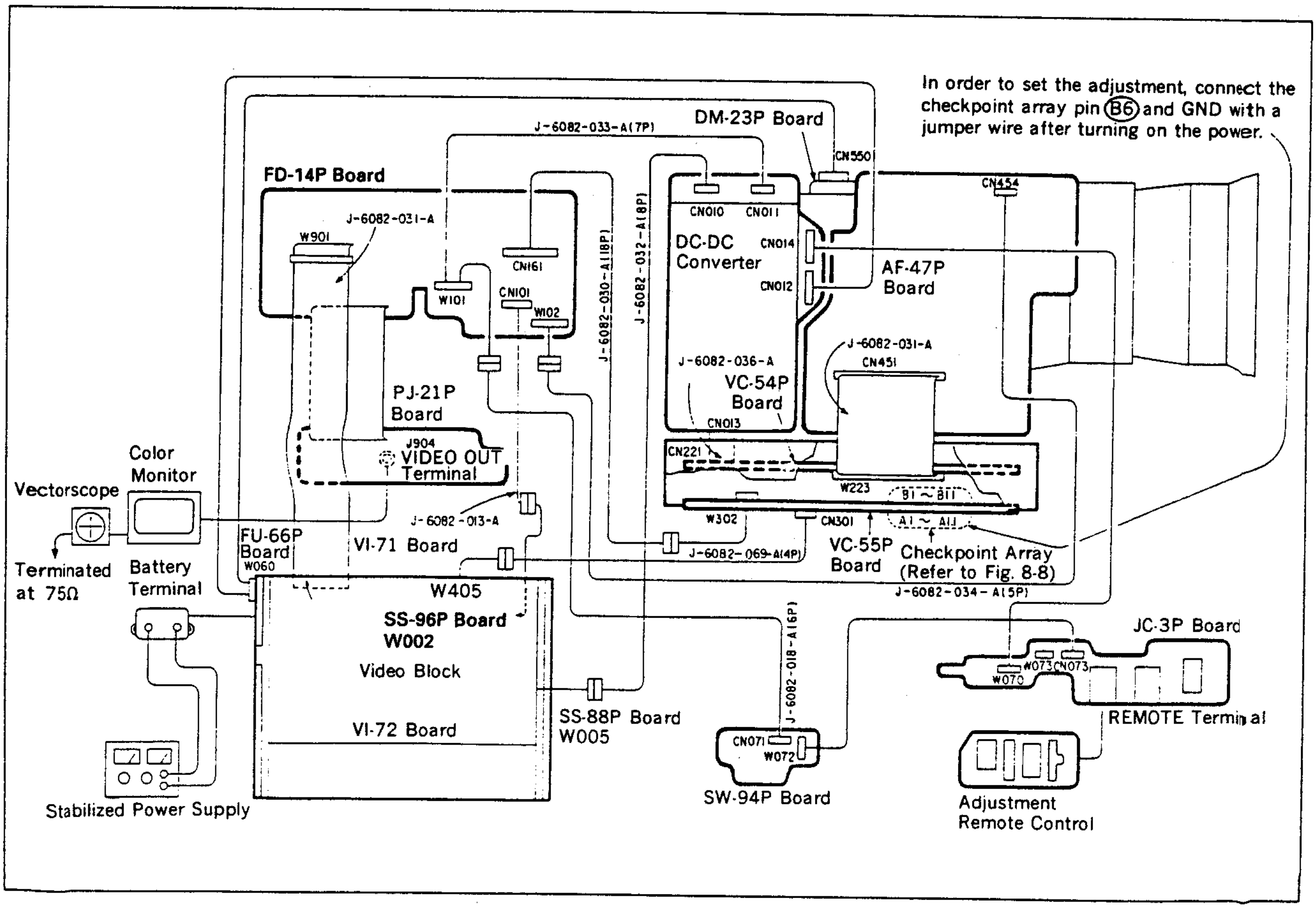
Note : For detailed cabinet and board removal procedures, refer to "SECTION 2 DISASSEMBLY"

1) Set the camera block as shown in Fig. 8-2.
2) Connect the camera block and the video block with an extension cable as shown in Fig. 8-3, and connect other adjusting devices.
3) The EVF (Electronic View Finder) is necessary to confirm the white balance mode or a shutter speed. They can be also confirmed on the monitor screen by turning **on the data screen (ON/OFF at the FK-11P board S080).**
4) The MK-5 board is not necessary for adjustment of the camera block. When it is obstructive, remove the following 2 connectors :
   1. **TC-11P board: CN002**
   2. **TC-11P board: CN003**
5) The zoom switch is not particularly required for adjustment. Remove the DM-23P board CN551.
6) The following 2 extension cables are provided for checking the VC-54P board.
   1. 20-pin flat extension cable between the VC-54P board W223 and AF-47P board CN451
   2. 6-pin extension cable between the VC-54P board CN221 and DC-DC converter CN013



Pattern Box
1.5 m
Lens Datum Level (Φ)

Fig. 8-2.



In order to set the adjustment, connect the checkpoint array pin ⒷⓈ and GND with a jumper wire after turning on the power.

J-6082-033-A(7P)
DM-23P Board
CN550
FD-14P Board
J-6082-031-A
W901
CN161
W101
CN101
W102
J-6082-030-A(18P)
J-6082-032-A(8P)
CN010
CN011
DC-DC Converter
CN014
CN012
AF-47P Board
CN454
J-6082-036-A
VC-54P Board
CN013
J-6082-031-A
CN451
PJ-21P Board
J904
VIDEO OUT Terminal
Color Monitor
Vectorscope
Terminated at 75Ω
Battery Terminal
FU-66P Board
W060
VI-71 Board
J-6082-013-A
W405
SS-96P Board
W002
Video Block
VI-72 Board
SS-88P Board
W005
CN221
W223
B1 ~ B11
A1 ~ A11
W302
CN301
J-6082-069-A(4P)
VC-55P Board
Checkpoint Array (Refer to Fig. 8-8)
J-6082-034-A(5P)
J-6082-018-A(6P)
JC-3P Board
W073
CN073
W070
REMOTE Terminal
CN071
W072
SW-94P Board
Adjustment Remote Control
Stabilized Power Supply

Fig. 8-3.

8-2-2. Cautions

1) Setting of the switches

Unless otherwise specified, set the switches to the following positions and make adjustment without loading a cassette.

- Camera block

1. **CAMERA/VTR power switch (FK-11P board S095)** ....CAMERA
2. STANDBY switch (SW-94P board S071) ....STANDBY
3. **AUTO LOCK switch (FD-14P board S113).........OFF**
4. **FOCUS button (FD-14P board S109).........MANUAL**
5. **WHITE BALANCE button (FD-14P board S110)** .... (indoor)
6. **IRIS knob (FD-14P board RV101)** ....Center click position
7. **SHUTTER button (FD-14P board S112)** ....NORMAL (1/60)
8. **SENS button (FD-14P board S111)............NORMAL**

2) Adjustment order

As a rule, adjust in an described order.

3) Objects

1. Color bar chart (standard picture frame)
   When making adjustment with a color bar chart, adjust the picture frame as shown in Fig. 8-4.
2. White pattern (standard picture frame)
   Remove the color bar chart from the pattern box and adjust with the zoom lever so that the white pattern will have the same size and position as the color bar chart (standard picture frame).
3. All white pattern
   Remove the color bar chart from the pattern box and turn the zoom lever fully to the TELE side.
4. Siemens star (J-6080-875-A)
   Adjust a camera direction so that the Siemens star will be centered with the monitor screen on the monitor TV screen.

Color Bar Chart Standard Picture Frame

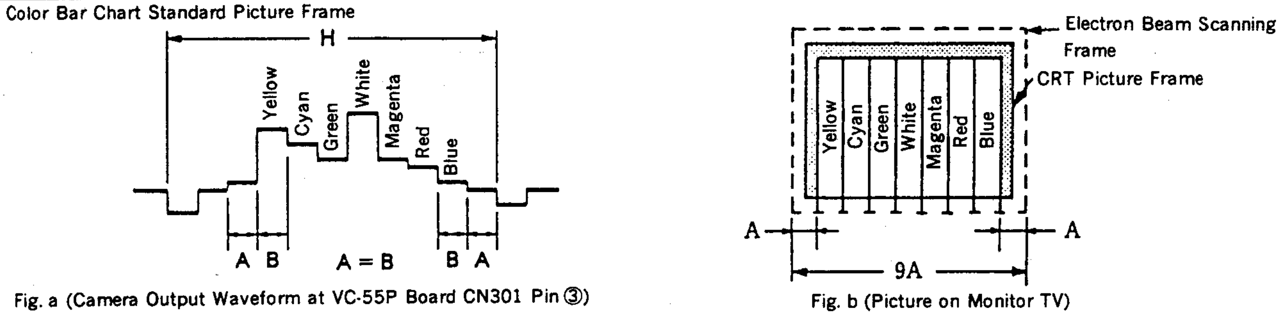


Fig. a (Camera Output Waveform at VC-55P Board CN301 Pin ③)

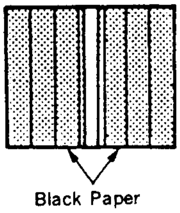
Fig. b (Picture on Monitor TV)

Adjust camera zooming and its direction to obtain the output waveform in Fig. a and the monitor TV picture in Fig. b.

Fig. 8-4.

5. High-luminance pattern
   Create a high-luminance pattern as shown in Fig. 8-5 and adjust the picture frame as shown in Fig. 8-6.

High-luminance Pattern



Cover the color bar chart with black paper, except half the width of its white stripe. Then, shoot the chart with the standard picture frame.

Fig. 8-5.

High-luminance pattern

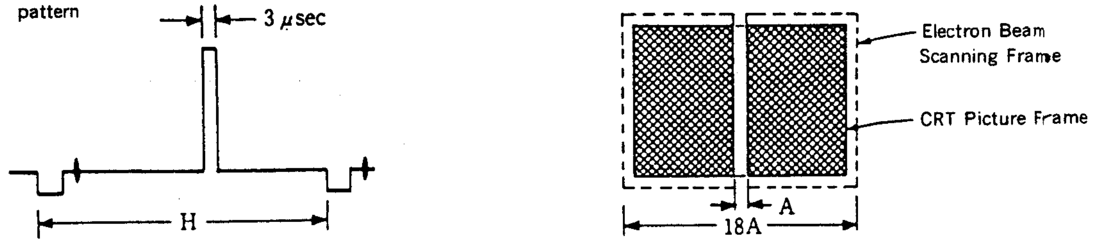


Fig. a (Camera Output Waveform at VC-55P Board CN301 pin ③)

Fig. b (Picture on Monitor TV)

Adjust camera zooming and its direction to obtain the output waveform in Fig. a and the monitor TV picture in Fig. b.

Fig. 8-6.

8-2-3. Adjustment Remote Control

In the camera block, the EVR (Electronic Variable Resistor) is used as an adjustment element in place of a conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microcomputer (VC-55P board IC301). This microcomputer reads the data written in the non-volatile memory inside the microcomputer and sends it to the EVR. The EVR generates an adjustment voltage by D-A conversion of this data (8 bits per one adjustment point).

To adjust, the camera block, therefore, it is necessary to rewrite the adjustment data written in the non-volatile memory. The adjustment remote control is used for this purpose.

The adjustment remote control performs bidirectional communications with the microcomputer in the camera block through a remote control signal line (LANC). UP/DOWN commands for adjustment address and data are sent from the adjustment remote control to the microcomputer in the camera block. Sent from the microcomputer in the camera block to the adjustment remote control are the adjustment address and data.

1. Using the Adjustment Remote Control

Solder a lead wire, etc. to the checkpoint array pin Ⓑ6 of the VC-55 board (refer to 8-2-4).

1) Connect the adjustment remote control to the REMOTE terminal (JC-3P board J070).
(Shift the HOLD switch of the adjustment remote control to the HOLD position (SERVICE position).)
2) Turn on the power for the main unit.
3) Connect the checkpoint array pin Ⓑ6 (CAM ADJ) and GND with a jumper wire.
(By this connection, the EVR/AWB microcomputer stops regular remote control operation and starts adjustment-only communications.)

Note : Be sure to make this connection after turning on the power.

If the connection is correct, the following is displayed on the adjustment remote control LCD. (The adjustment data varies from one set to another.)

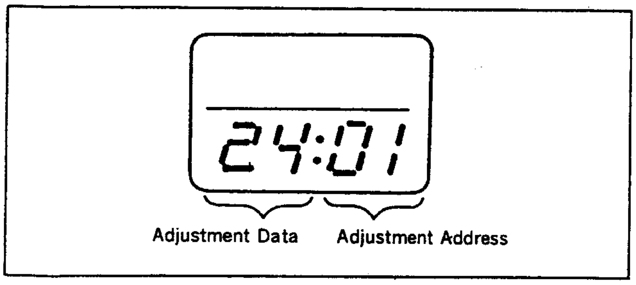


Fig. 8-7.

4) Specify your desired adjustment address by the adjustment remote control. Pressing the FF (▶▶) button increments the adjustment address, and pressing the REW (◀◀) button decrements it.
(The adjustment address is shown in the decimal number and there are 89 of them from 01 to 89. The adjustment address corresponds to the output terminal of the EVR (IC305 on the VC-55P board, IC003 on the CP-20P board, and IC454 of the AF-47P board). Refer to Table 8-3 for adjustment of each address.)
5) Make adjustment by increasing/decreasing the adjustment data.
Pressing the PLAY (▶) button increases the adjustment data, and pressing the STOP (■) button decreases it.

- The adjustment data is shown in the hexadecimal number and assumes 256 kinds of values ranging from 00 to FF.

Hexadecimal No.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Indication of LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal converted value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 8-1.

- The adjustment data corresponds to the output voltage of the EVR (IC305 on the VC-55P board, IC003 on the CP-20P board, and IC454 on the AF-47P board) as follows:

Adjustment Data Decimal Converted Value in ( )	EVR Output Voltage
F F (=255)	Max. value (approx.5V DC)
F 0 (=240)	↑
E 0 (=224)	
D 0 (=208)	
C 0 (=192)	
B 0 (=176)	
A 0 (=160)	
9 0 (=144)	
8 0 (=128)	Center value (approx. 2.5V DC)
7 0 (=112)	
6 0 (=96)	
5 0 (=80)	
4 0 (=64)	
3 0 (=48)	
2 0 (=32)	
1 0 (=16)	↓
0 0 (= 0)	Min. value (approx. 0V DC)

Table 8-2.

6) Change the adjustment address with the FF (▶▶) or REW (◀◀) button in order to store the adjustment data into the non-volatile memory built in the EVR/AWB microcomputer (VC-55P board IC301).
(If this operation is omitted, new adjustment data will not be stored into the non-volatile memory.)
7) There is a function provided to make note of the last error cuased by the COUNTER RESET button during operation of the set even if the power is turned off. This LAST MEMO EMERGENCY (last error) can be cleared.

2. Cautions for Using the Adjustment Remote Control

Erroneous operation of the adjustment remote control may delete correct adjustment data. To avoid this, it is recommended to make note of all the adjustment data before adjustment and of new adjustment data every time adjustment of one item is completed.

3. List of Adjustment Addresses

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
01	CP-20P board IC003 pin ⑱	DELTA R	Auto white balance adjustment	
02	CP-20P board IC003 pin ⑲	DELTA B		
03	CP-20P board IC003 pin ②	TITLE PEDESTAL		
04	CP-20P board IC003 pin ③	C-PED	Fixed at "95"	95
05	CP-20P board IC003 pin ④	R-Y GAIN	Color reproducibility (gain) adjustment	
06	CP-20P board IC003 pin ⑤	B-Y GAIN		
07	CP-20P board IC003 pin ⑥	R-Y HUE	Color reproducibility (hue) adjustment	
08	CP-20P board IC003 pin ⑦	B-Y HUE		
09	CP-20P board IC003 pin ⑧	TITLE A/D		
10	CP-20P board IC003 pin ⑨	CHARACTER		
11	CP-20P board IC003 pin ⑫	R GAIN	Pre-white balance	
12	CP-20P board IC003 pin ⑬	B GAIN		
13	VC-55P board IC305 pin ⑱	C1 GAIN	Chroma matrix adjustment	
14	VC-55P board IC305 pin ⑲	Y1 GAIN	Y matrix adjustment	
15	VC-55P board IC305 pin ②	CHROMA LEVEL		
16	VC-55P board IC305 pin ③	BURST LEVEL		
17	VC-55P board IC305 pin ④	HUE CONT		
18	VC-55P board IC305 pin ⑤	SYNC LEVEL		
19	VC-55P board IC305 pin ⑥	SET UP		
20	VC-55P board IC305 pin ⑦	WHITE CLIP		
21	VC-55P board IC305 pin ⑧	Y LEVEL		
22	VC-55P board IC305 pin ⑨	APERTURE		
23	VC-55P board IC305 pin ⑫	YH LEVEL		
24	VC-55P board IC305 pin ⑬	C2 GAIN		
25	AF-47P board IC454 pin ⑱	IRIS		
26	AF-47P board IC454 pin ⑲	FOCUS SPEED		
27	AF-47P board IC454 pin ②	HALL OFFSET		
28	AF-47P board IC454 pin ③	MAX GAIN		
29	AF-47P board IC454 pin ④	———		———
30	AF-47P board IC454 pin ⑤	V SUB 1		
31	AF-47P board IC454 pin ⑥	V SUB 2		
32	AF-47P board IC454 pin ⑦	AGC		
33		———		———
34		———		———
35		———		———
36		———		———

Table 8-3 (1).

<table>
<tr><th>Adjustment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Memo Column</th></tr>
<tr><td>37</td><td></td><td>MODE</td><td>The following adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment data.</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>Cancel</td></tr>
<tr><td>01</td><td>Focus hunting</td></tr>
<tr><td>03</td><td>Zoom position</td></tr>
<tr><td>05</td><td>HALL, IRIS CLOSE</td></tr>
<tr><td>07</td><td>HALL, IRIS OPEN</td></tr>
<tr><td>09</td><td>HALL IN/OUT Threshold</td></tr>
<tr><td>0B</td><td>Auto focus LLA</td></tr>
<tr><td>FD</td><td>Auto focus filter fixed at FA</td></tr>
<tr><td>FF</td><td>Auto focus filter fixed at FH</td></tr>
</table></td><td>00</td></tr>
<tr><td>38</td><td></td><td>LLA</td><td>Auto focus LLA adjustment</td><td></td></tr>
<tr><td>39</td><td></td><td>MACRO</td><td></td><td></td></tr>
<tr><td>40</td><td></td><td>IN/OUT DOOR</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>41</td><td></td><td>LOW CONT</td><td rowspan="5">Auto focus adjustment</td><td></td></tr>
<tr><td>42</td><td></td><td>FA-SM</td><td></td></tr>
<tr><td>43</td><td></td><td>FH-SM</td><td></td></tr>
<tr><td>44</td><td></td><td>FA-B</td><td></td></tr>
<tr><td>45</td><td></td><td>FH-B</td><td></td></tr>
<tr><td>46</td><td></td><td>M12 THR</td><td>Fixed at 82</td><td>82</td></tr>
<tr><td>47</td><td></td><td>GETA-H</td><td>Auto focus adjustment</td><td></td></tr>
<tr><td>48</td><td></td><td>FA BASE</td><td>Fixed at 20</td><td>20</td></tr>
<tr><td>49</td><td></td><td>THR STEP</td><td rowspan="2">Auto focus adjustment</td><td></td></tr>
<tr><td>50</td><td></td><td>KATAMUKI</td><td></td></tr>
<tr><td>51</td><td></td><td>BACK RUSH</td><td>Fixed at 01</td><td>01</td></tr>
<tr><td>52</td><td></td><td>FHW</td><td>Auto focus adjustment</td><td></td></tr>
<tr><td>53</td><td></td><td>HANT LIMIT</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>54</td><td></td><td>AGC W</td><td></td><td></td></tr>
<tr><td>55</td><td></td><td>AGC B</td><td></td><td></td></tr>
<tr><td>56</td><td></td><td>BASE H</td><td></td><td></td></tr>
<tr><td>57</td><td></td><td>IRIS IN</td><td rowspan="2">IRIS IN/OUT adjustment</td><td></td></tr>
<tr><td>58</td><td></td><td>IRIS OUT</td><td></td></tr>
<tr><td>59</td><td></td><td>START R</td><td>Preset R CONT data at reset start time</td><td>30</td></tr>
<tr><td>60</td><td></td><td>START B</td><td>Preset B CONT data at reset start time</td><td>41</td></tr>
<tr><td>61</td><td></td><td>BTM SLP R</td><td>Fixed at 23</td><td>23</td></tr>
<tr><td>62</td><td></td><td>BTM SLP B</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>63</td><td></td><td>MDL SLP R</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>64</td><td></td><td>MDL SLP B</td><td>Fixed at 00</td><td>00</td></tr>
</table>

Table 8-3 (2).

<table>
<tr><th>Adjust-ment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Memo Column</th></tr>
<tr><td>65</td><td></td><td>TOP SLP R</td><td>Fixed at 10</td><td>10</td></tr>
<tr><td>66</td><td></td><td>TOP SLP B</td><td>Fixed at 01</td><td>01</td></tr>
<tr><td>67</td><td></td><td>KEIKO R</td><td>Fixed at 41</td><td>41</td></tr>
<tr><td>68</td><td></td><td>KEIKO B</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>69</td><td></td><td>BTM UP</td><td>Fixed at 45</td><td>45</td></tr>
<tr><td>70</td><td></td><td>BTM DWN</td><td>Fixed at 33</td><td>33</td></tr>
<tr><td>71</td><td></td><td>MDL UP</td><td>Fixed at 7C</td><td>7C</td></tr>
<tr><td>72</td><td></td><td>MDL DWN</td><td>Fixed at 69</td><td>69</td></tr>
<tr><td>73</td><td></td><td>TOP UP</td><td>Fixed at 8F</td><td>8F</td></tr>
<tr><td>74</td><td></td><td>TOP DWN</td><td>Fixed at 6C</td><td>6C</td></tr>
<tr><td>75</td><td></td><td>KEIKO DWN</td><td>Fixed at 9E</td><td>9E</td></tr>
<tr><td>76</td><td></td><td>R DWN LMT</td><td rowspan="4">Auto white balance adjustment</td><td></td></tr>
<tr><td>77</td><td></td><td>B UP LMT</td><td></td></tr>
<tr><td>78</td><td></td><td>R OUT LMT</td><td></td></tr>
<tr><td>79</td><td></td><td>B OUT LMT</td><td></td></tr>
<tr><td>80</td><td></td><td>R OUT DOOR</td><td rowspan="2">Auto white balance adjustment</td><td></td></tr>
<tr><td>81</td><td></td><td>B OUT DOOR</td><td></td></tr>
<tr><td>82</td><td></td><td>RESET TM</td><td>Fixed at 3C</td><td>3C</td></tr>
<tr><td>83</td><td></td><td>DELAY TM</td><td>Auto white balance tracking speed, Fixed at 10</td><td>10</td></tr>
<tr><td>84</td><td></td><td>FAST TM</td><td>Fixed at 20</td><td>20</td></tr>
<tr><td>85</td><td></td><td>CAM DDS 0</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>86</td><td></td><td>CAM DDS 1</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>87</td><td></td><td>CAM DDS 2</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>88</td><td></td><td>CAM ALN</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>89</td><td></td><td>AWB mode</td><td>The following auto white balance adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment Data</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>Cancel
(setting upon shipment)</td></tr>
<tr><td>10</td><td>White balance value output
(within tracking zone)</td></tr>
<tr><td>E0</td><td>Auto white balance adjustable</td></tr>
<tr><td>F0</td><td>Auto white balance tracking zone judgment disable</td></tr>
</table></td><td>00</td></tr>
</table>

Table 8-3 (3).

8-2-4. Checkpoint Array

Most measurement points for adjustment of the camera block are concentrated on the checkpoint array of the VC-55P board.

Solder a short lead wire, etc. to the terminal required for adjustment and connect an oscilloscope. Table 8-4 shows the terminal numbers and signal names of the checkpoint array.

Terminal No.	Signal Name	Terminal No.	Signal Name
A1	G OUT	B1	ID
A2	N.C	B2	N.C
A3	N.C	B3	Y (LPF) OUT
A4	Y0	B4	V SUB
A5	Y1	B5	AW ADJ
A6	C0	B6	$\overline{\text{CAM ADJ}}$
A7	C1	B7	MODE
A8	N.C	B8	VIDEO OUT
A9	YH	B9	SHUTTER EN
A10	N.C	B10	GND
A11	N.C	B11	CCD OUT

Table 8-4.

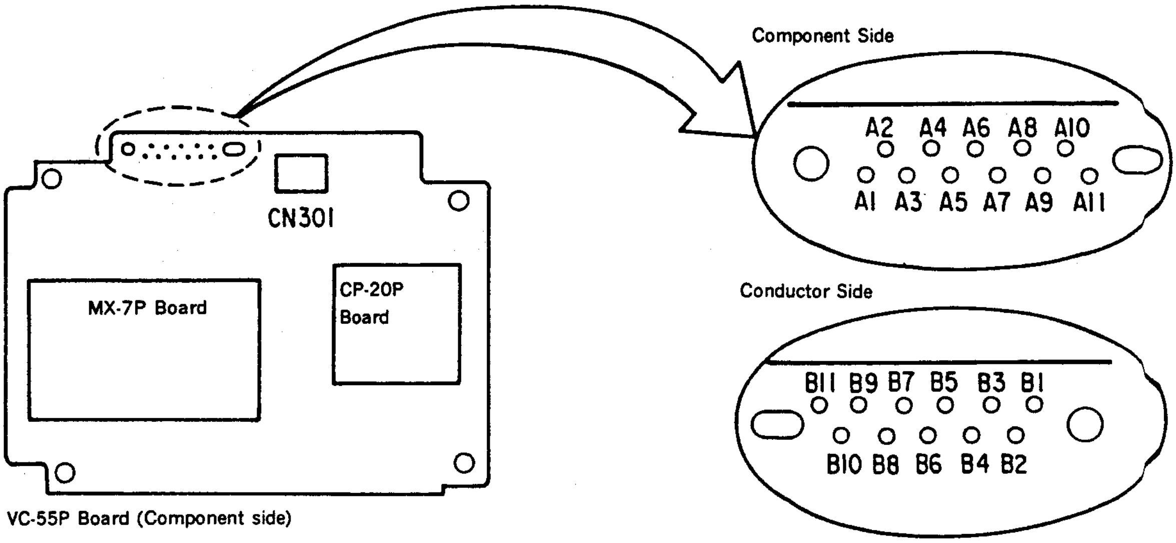

Component Side
A2 A4 A6 A8 A10
A1 A3 A5 A7 A9 A11
Conductor Side
B11 B9 B7 B5 B3 B1
B10 B8 B6 B4 B2
CN301
MX-7P Board
CP-20P Board
VC-55P Board (Component side)

Fig. 8-8.

8-2-5. AF Microcomputer Data Reader Jig

The AF microcomputer data reader jig converts adjustment serial data outputted from the AF microcomputer (AF-47P board IC452) (different data are outputted depending on the adjustment mode, such as HALL (iris) state, focus state, focus motor speed, zoom ring position, etc.) into 2-digit hexadecimal numbers and indicates on the LED.

[Connection]

Connect as shown in the figure below :

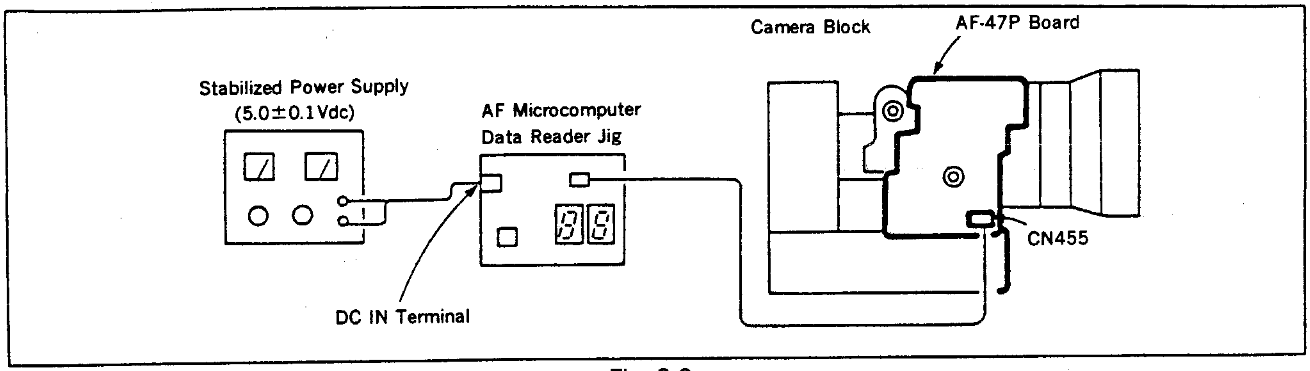


Fig. 8-9.

8-2-6. Data Processing

In order to obtain adjustment data in some adjustment items, it is necessary to compute the display data (hexadecimal number) of the AF microcomputer data reader jig and adjustment remote control.

In this case, convert the hexadecimal number into the decimal number before computation, convert its computed result back into the decimal number to assume it as the adjustment data. Table 8-5 shows a hexadecimal-decimal conversion table.

Hexadecimal — Decimal Conversion Table

Higher Digit of Hex. No. / Lower Digit of Hex. No.	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② ↓ D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : Values in parentheses are those displayed on the AF microcomputer reader jig or adjustment remote control.

(Example) When the AF microcomputer reader jig or adjustment remote control displays "BD (bd)";
Since the higher digit of the hexadecimal number is B (b) and its lower digit is D (d), the decimal number to be obtained is "189" at an intersecting point of ① and ② in the table above.

Table 8-5.

8-3. ADJUSTMENT OF CAMERA SYSTEM

8-3-1. Flange Back Adjustment

Object	Siemens star (at 2 m in front of the lens datum level Φ mark)
Measurement point	Check with the monitor TV.
Measuring instrument	
Adjustment element	Flange back adjusting pin
Tools	Phillips screwdriver, regular screwdriver

[Adjustment Method]

1) Press the FOCUS button **(FD-14P board S109)** to select the MANUAL mode. `
2) Place the Siemens star at a distance of 2 m in front of the lens datum level (refer to Fig. 8-2).
3) Adjust a camera block position to center the Siemens star on the monitor screen with the monitor screen.
4) Check that the lens zoom lever can be moved fully to the WIDE end (11 mm) and TELE end (88 mm), respectively, and fix it at the WIDE end. (When this is done, check also zooming operation on the monitor screen.)
5) Open the iris with the IRIS control knob **(FD-14P board** RV101).
   When this is done, obtain a normal image on the monitor TV screen either by adjusting illumination onto the siemens star or covering the lens with the ND filter.
6) Set the lens focusing mark at the center of "2".

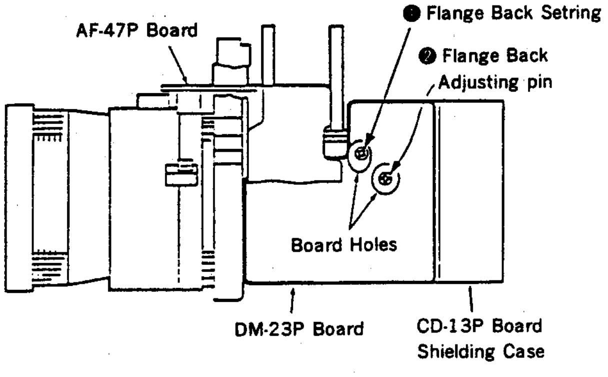

❶ Flange Back Setring
AF-47P Board
❷ Flange Back Adjusting pin
Board Holes
DM-23P Board
CD-13P Board Shielding Case

Fig. 8-10.

7) Loosen the flange back setscrew ❶ with the Phillips screwdriver. (Refer to Fig. 8-10)
8) Viewing the monitor screen, turn the glange back adjusting pin ❷ to make clearest the wedge located at the center of the Siemens star on the screen. (Turn it 2 to 3 times to the right and left to check the wedge to be clearest.)
   Note : Do not turn the adjusting pin excessively in one direction at a time.
9) Holding the flange back adjusting pin ❷ not to turn it further, tighten the flange back setscrew ❶.
10) With the zoom lever fixed at the WIDE end, turn the focusing ring and stop it at a position which provides the clearest image of the wedge. Check that the focusing ring is within the range shown in Fig. 8-11 at this time. Also, turn the focusing ring to the short distance end (1.1 m) and long distance end (∞) and check that the wedge image blurs at respective positions.

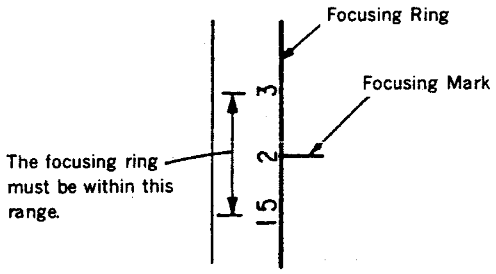

Focusing Ring
Focusing Mark
The focusing ring must be within this range.
3
2
1.5

Fig. 8-11.

11) Fix the zoom lever at the TELE end.
12) Turn the focusing ring and stop it at a position which provides the clearest wedge image. When this is done, check that the focusing ring is within a range of ±1. 5mm from the center of "2".

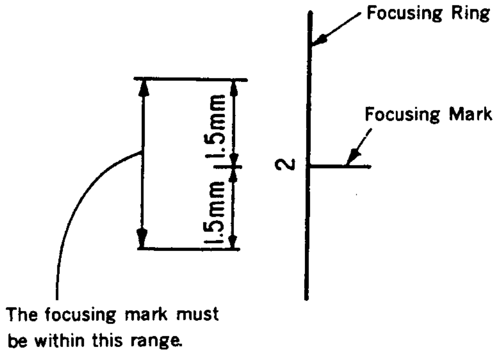

Focusing Ring
Focusing Mark
1.5mm
1.5mm
2
The focusing mark must be within this range.

Fig. 8-12.

8-3-2. Power Check (DC-DC Converter)

Measuring isntrument	Digital voltmeter
CAM 5V check	
Measurement point	CN013 pin ⑥
Specified value	5.0±0.15Vdc
CAM 7V check	
Measurement point	CN013 pin ②
Specified value	6.6±0.33Vdc
CAM 15V check	
Measurement point	CN013 pin ③
Specified value	15.0±0.45Vdc
CAM 30V check	
Measurement point	CN013 pin ⑤
Specified value	26.0±1.6Vdc

[Checking Method]

1) Each supply voltage must meet the specified value.

8-3-3. EVR Initial Setting

Make initial setting of adjustment data only when the EVR/AWB microcomputer (VC-55P board IC301) is replaced. (Pre-replacement microcomputer data will do.)

Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value
01 (DELTA R)	30~70	48 (FA BASE)	20	69 (BTM UP)	45
02 (DELTA B)	30~70	49 (THR STEP)	03	70 (BTM DWN)	33
04 (C-PED)	95	50 (KATAMUKI)	04	71 (MDL UP)	7C
20 (WHITE CLIP)	FF	51 (BACK RUSH)	02	72 (MDL DWN)	69
21 (Y LEVEL)	70	52 (FH W)	00	73 (TOP UP)	8F
25 (IRIS)	68	53 (HANT LIM)	00	74 (TOP DWN)	6C
28 (MAX GAIN)	B0	56 (BASE H)	18	75 (KEIKO DWN)	9E
30 (V SUB 1)	80	59 (START R)	30	76 (R DWN LMT)	1E
31 (V SUB 2)	80	60 (START B)	41	77 (B UP LMT)	6E
32 (AGC)	FF	61 (BTM SLP R)	23	78 (R OUT LMT)	25
37 (MODE)	00	62 (BTM SLP B)	00	79 (B OUT LMT)	5B
38 (LLA)	3F	63 (MDL SLP R)	00	82 (R TM)	3C
39 (MACRO)	00	64 (MDL SLP B)	00	83 (D TM)	0D
40 (IN/OUT DOOR)	00	65 (TOP SLP R)	10	84 (F TM)	20
41 (LOW CONT)	00	66 (TOP SLP B)	01	88 (CAM ALN)	00
46 (M12 THR)	82	67 (KEIKO R)	41	89 (AWB MODE)	00
47 (GETA H)	02	68 (KEIKO B)	00		

Table 8-5.

[Adjustment Method]

1) Set the adjustment data for each adjustment address to the initial value with the adjustment remote control.
2) Change the adjustment address in order to memorize the last adjustment data.

8-3-4. V SUB Adjustment (VC-55P Board)

Object	Unnecessary
Measurement point	Checkpoint array pin (B4) (V SUB)
Measuring instrument	Digital voltmeter
Adjustment address	30 (V SUB 1) 31 (V SUB 2)
Specified value	(Imager indicated voltage)±0.05Vdc

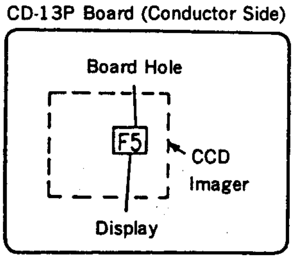
Note 1 : The adjustment address 30 (V SUB 1) is for coarse adjustment, and 31 (V SUB 2) for fine adjustment.

[Adjustment Method]

1) Change the adjustment data at the adjustment addresses 30 and 31 with the adjustment remote control, and set the V SUB voltage to the imager indicated voltage ±0.05Vdc.
2) Change the adjustment address in order to store the adjustment data.

Note 1 : The V SUB specified voltage is indicated in 2 digits, "integer symbol" and "decimal part" on the imager.

Integer Symbol	Integer Value
1	1
⋮	⋮
9	9
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19
K	20
L	21


CD-13P Board (Conductor Side)
Board Hole
F5
CCD
Imager
Display

Example: When F5 is displayed, integer value is F=15 and decimal value is 5=0.5 therefore the V SUB voltage is 15+0.5=15.5 (V DC)

Fig. 8-13.

8-3-5. PLL Adjustment (VC-54P Boards)

Subject	Optional
Measurement point	See Fig.8-14.
Measuring instrument	Digital voltmeter
Adjustment element	CT261
Specified value	2.5±0.2Vdc

[Adjustment Method]

1) Adjust to 2.5±0.2Vdc with CT261.

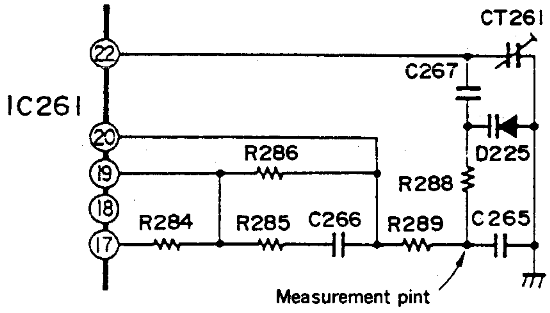

CT261
22
C267
IC261
20
D225
R286
19
R288
18
R284
R285
C266
R289
C265
17
Measurement pint

Fig. 8-14.

8-3-6. HALL Adjustment (DM-23P and AF-47P Boards)

Object	All black (Cover the lens with a black cap.)
Measurement point	AF-47P board CN455
Measuring instrument	AF microcomputer data reader jig
Adjustment element	DM-23P board RV551
Adjustment address	27 (HALL OFFSET)
Specified value	At iris close time: Minimum value of 01 to 04 At iris open time: 3D or 3E

[Adjustment Method]

1) Set RV551 to the mechanical center.
2) Select the adjustment address 37 by the adjustment remote control and set the adjustment data to be 05. (setting at iris close time)
3) Change the adjustment address to 27.
4) Change the adjustment data so that the AF microcomputer data reader jig indicates a minimum value within a range of 01 to 04. (HALL offset adjustment)
5) Change the adjustment address to 37 and set the adjustment data to 07. (setting at iris open time)
6) Adjust RV551 so that the AF microcomputer data reader jig indicates 3D or 3E. (3D is indicated as 3d' .)
7) Repeat the steps 1) through 5) until the specified value is met.
8) Select the adjustment address 37 and set the adjustment data to 00.
   (cancellation of the adjustment mode)
9) Change the adjustment address in order to store the adjustment data.

8-3-7. IRIS Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Filter	ND filter 0.4 and 0.1
Measurement point	Checkpoint array pin (B11) (CCD OUT)
Measuring instrument	Oscilloscope
Adjustment address	25 (IRIS)
Specified value	420±30 mV

[Adjustment Method]

1) Select the adjustment address 25 with the adjustment remote control.
2) With no ND filter attached, change the adjustment data with the adjustment control to adjust the IRIS OUT signal level to 420±30 mV.
3) Attach the ND filter 0.5 (0.4+0.1) in front of the lens and check that the signal level changes smoothly.
4) Remove the ND filter and check that the signal level is 420±30 mV.
5) When the specified value is not met, repeat the steps 2) through 4).
6) Change the adjustment address in order to store the adjustment data.

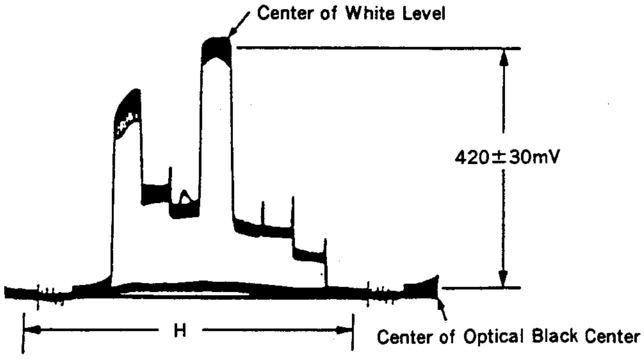


Fig. 8-15.

8-3-8. IRIS IN/OUT Adjustment (AF-47P Board)

Object	White pattern standard picture frame
Filter	ND filter: 0.4×2pcs., 0.1×1pc.
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig
Adjustment address	57 (IRIS IN) 58 (IRIS OUT)

[Adjustment Method]

1) Cover the lens with the ND filter 0.8 (0.4+0.4).
2) Select the adjustment address with the adjustment remote control and set the adjustment data to 09. (HALL IN/OUT threshold mode setting)
3) Read the AF microcomputer data reader jig data and enter this data to the adjustment address 57 as adjustment data.
4) Remove the ND filter 0.8 and attach the ND filter 0.5 (0.4+0.1).
5) Read the AF microcomputer data reader jig data and enter this data to the adjustment address 58 as adjustment data.
6) Change the adjustment address to 37 to set the adjustment data to 00. (cancellation of the HALL IN/OUT threshold mode).
7) Change the adjustment address in order to store the adjustment data.

8-3-9. AGC Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin Ⓑ3 (Y (LPF) OUT)
Measuring instrument	Oscilloscope
Adjustment address	32 (AGC)
Specified value	175±5 mV

[Adjustment Method]

1) Select the adjustment address 32 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to set the Y (LPF) signal level to 175±5 mVp-p.
3) Change the adjustment address in order to store the adjustment data.

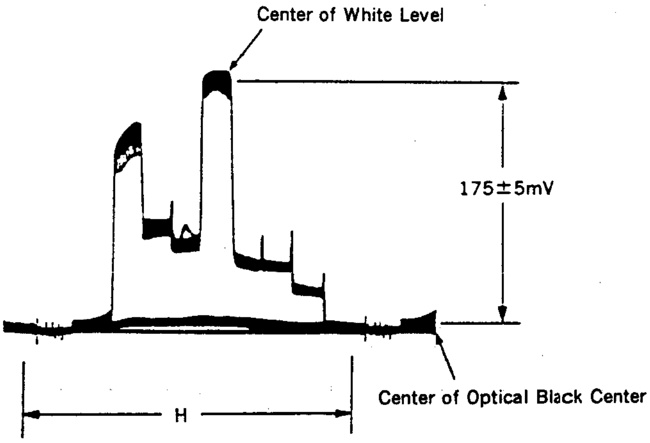


Fig. 8-16.

8-3-10. Y Signal Matrix Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	1: Checkpoint array pin Ⓐ4 (Y0) 2: Checkpoint array pin Ⓐ5 (Y1)
Measuring instrument	Oscilloscope
Adjustment address	14 (Y1 GAIN)
Specified value	Y1 signal level=Y0 signal level

[Adjustment Method]

1) Connect the oscilloscope to the checkpoint array pin Ⓐ4 and measure the Y0 signal.
2) Connect the oscilloscope to the checkpoint array pin Ⓐ5. (measurement of the Y1 signal level)
3) Select the adjustment address 14 with the adjustment remote control.
4) Change the adjustment data to coincide the Y1 signal level with the Y0 signal level measured in 1).
5) Change the adjustment address in order to store the adjustment data.

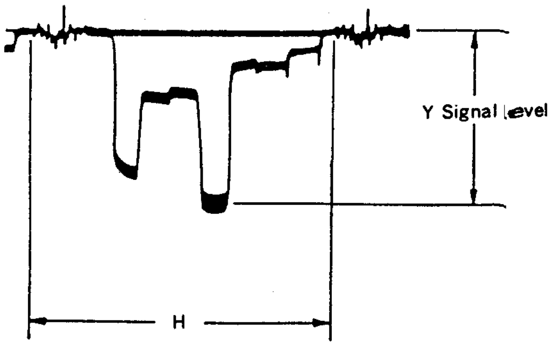


Fig. 8-17.

8-3-11. Chroma Signal Matrix Adjustment (1) (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	1 : Checkpoint array pin (A6) (C0) 2 : Checkpoint array pin (A7) (C1)
Measuring instrument	Oscilloscope
Adjustment address	13 (C 1 GAIN)
Specified value	C1 signal level = C0 signal level

[Adjustment Method]

1) Connect the oscilloscope to the checkpoint array pin (A6) to measure the C0 signal level. (Assume either higher one of the CR or CB signal levels as the C0 signal level.)
2) Connect the oscilloscope to the checkpoint array pin (A7) (measurement of the C1 signal level)
3) Select the adjustment address 13 with the adjustment remote control.
4) Change the adjustment data to coincide the C1 signal level with the C0 signal level measured in 1).
5) Change the adjustment address in order to store the adjustment data.

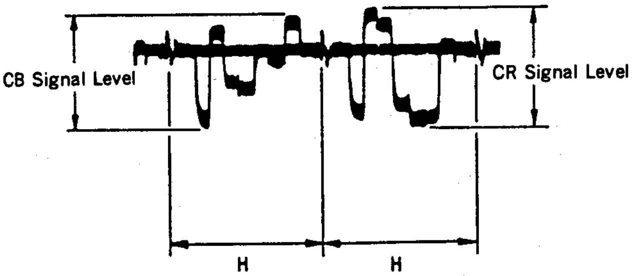


Fig. 8-18.

8-3-12. Chroma Signal Matrix Adjustment (2) (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	CH1 (X) : CP-20P board pin ㉔ (B-Y) CH2 (Y) : CP-20P board pin ㉕ (R-Y)
Measuring instrument	Oscilloscope (X-Y mode)
Adjustment address	24 (C 2 GAIN)
Specified value	Each color bright point must coincide. (Refer to the following when the vectorscope is used.)

Note 1 :Similarly adjustable with the vectorscope (vectorscope connection terminal : VIDEO OUT terminal of the video block)

[Adjustment Method]

1) Select the adjustment address 24 with the adjustment remote control.
2) Change the adjustment data to coincide each color bright point divided into two, respectively.
3) Change the adjustment address in order to store the adjustment data.

Specified Values When Vectorscope Is Used

Specified values : Cyan, green ......Within 2.0 mm
Magenta ....Within 1.0 mm

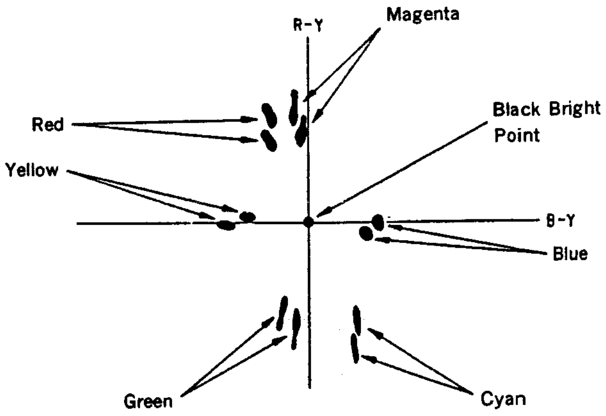


Fig. 8-19.

8-3-13. Y_H Level Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint pin array (A9) (Y H)
Measuring instrument	Oscilloscope
Adjustment address	23 (Y GAIN)
Specified value	830±20 mV

[Adjustment Method]

1) Select the adjustment address 23 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control and adjust the Y_H signal level to 830±20 mV.
3) Change the adjustment address in order to store the adjustment data.

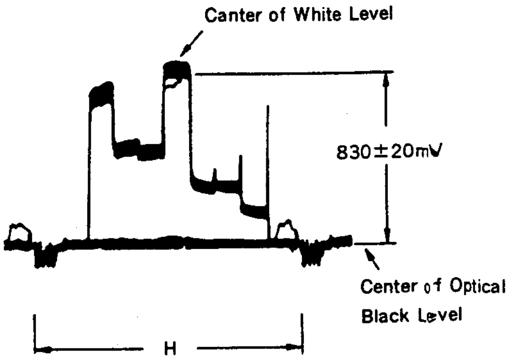


Fig. 8-20.

8-3-14. Chroma Level Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin (A1) (G OUT)
Measuring instrument	Oscilloscope
Adjustment address	15 (C LEVEL)
Specified value	340±10 mV

[Connection]

1) Connect the checkpoint array pin (B7) (MODE) and GND with a jumper wire.

[Adjustment Method]

1) Select the adjustment address with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the G OUT signal level to 340±10 mV.
3) Change the adjustment address in order to store the adjustment data.

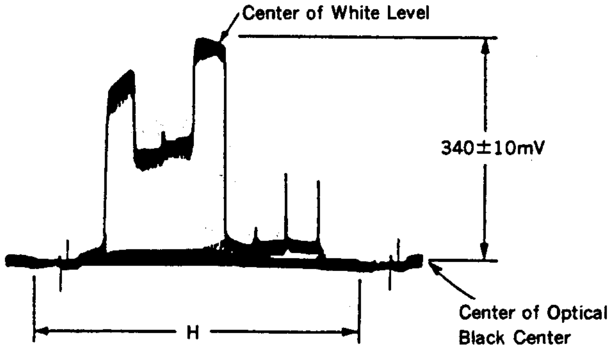


Fig. 8-21.

8-3-15. Sync. Level Adjustment (VC-55P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	18 (SYNC LEVEL)
Specified value	300±5mVp-p

[Adjustment Method]

1) Select the adjustment address 18 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the sync. level to 300±5mVp-p.
3) Change the adjustment address in order to store the adjustment data.

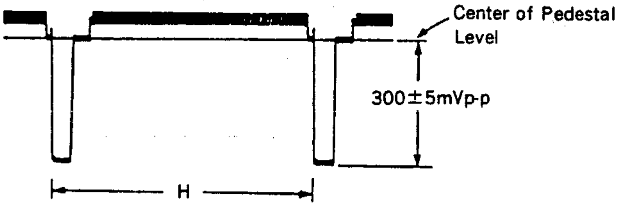


Fig. 8-22.

8-3-16. Setup Adjustment (VC-55P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	19 (SET UP)
Specified value	30±10mV

[Adjustment Method]

1) Select the adjustment address 22 (APERTURE) with the adjustment remote control, make note of the adjustment data of this address, and then, set the adjustment data to 00. (step to reduce noises)
2) Select the adjustment address 19 with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control to adjust the setup level to 30±10mV.
4) Select the adjustment address 22 and return the adjustment data to the value written down in the step 1).
5) Change the adjustment address in order to store the adjustment data.

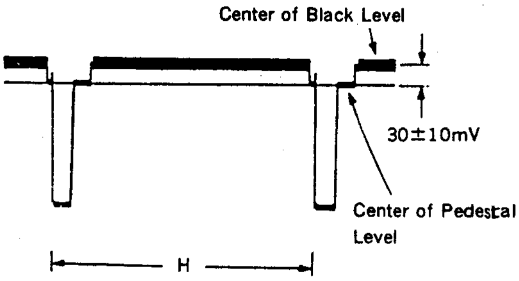


Fig. 8-23.

8-3-17. White Clip Adjustment (VC-55P Board)

Object	High-luminance pattern
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	20 (WHITE CLIP)
Specified value	825±20mV

[Adjustment Method]

1) Select the adjustment address 21 (Y LEVEL) with the adjustment remote control and set the adjustment data to 70.
2) Set the adjustment address to 20 with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control to adjust the white clip level to 825±20mV.
4) Change the adjustment address in order to store the adjustment data.
5) Make Y level adjustment as described in 8-3-17.

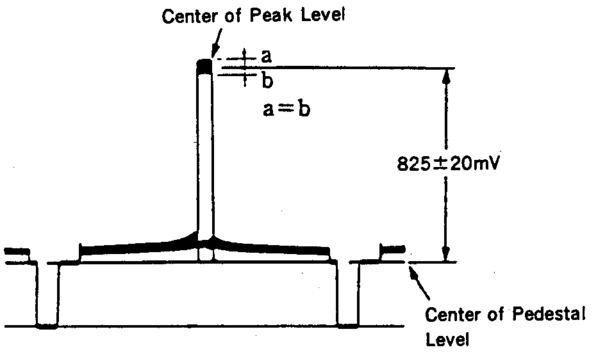


Fig. 8-24.

8-3-18. Y Level Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	21 (Y LEVEL)
Specified value	660±20mV

[Adjustment Method]

1) Check that the specified value in "8-3-17 White Clip Adjustment" is met.
2) Select the adjustment address 21 with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control and adjust the Y signal level to 660±20mV.
4) Change the adjustment address in order to store the adjusment data.

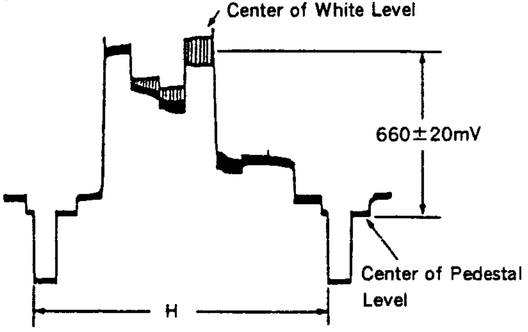


Fig. 8-25.

8-3-19. Aperture Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	22 (APERTURE)
Specified value	250±10mV

[Adjustment Method]

1) Turn the focusing ring to maximize the aperture level (waveform peak).
2) Select the adjustment address 22 with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control to set the aperture level (lower peak between "green" and "white") to a point 250±10mV above the pedestal level.
4) Change the adjustment address in order to store the adjustment data.

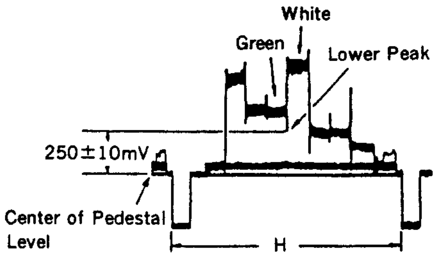


Fig. 8-26.

8-3-20. Max. Gain Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Filter	ND filter: 1.0×2pcs., 0.4 and 0.1×1pc. each
Measurement point	CN301 pin ③ (Y OUT)
Measuring instrument	Oscilloscope
Adjustment address	28 (MAX GAIN)
Specified value	340±10mV

[Adjustment Method]

1) Cover the lens with the ND filter 2.5 (1.0+1.0+0.4+0.1).
2) Select the adjustment address 28 with the adjustment remote control.
3) Change the adjustment address with the adjustment remote control to adjust the Y signal level to 340±10mV.
4) Change the adjustment address in order to store the adjustment data.

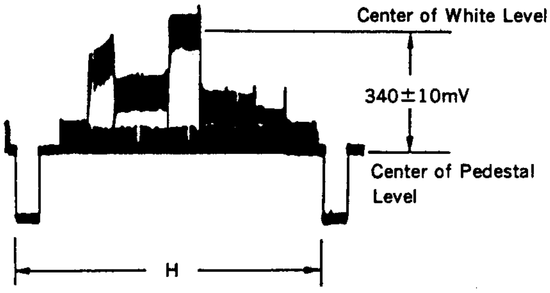


Fig. 8-27.

8-3-21. Burst Level Adjustment (VC-55P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN301 pin ① (C OUT)
Measuring instrument	Oscilloscope
Adjustment address	16 (BURST LEVEL)
Specified value	300±5mVp-p

[Adjustment Method]

1) Select the adjustment address 16 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the burst level to 300±5mVp-p.
3) Change the adjustment address in order to store the adjustment data.

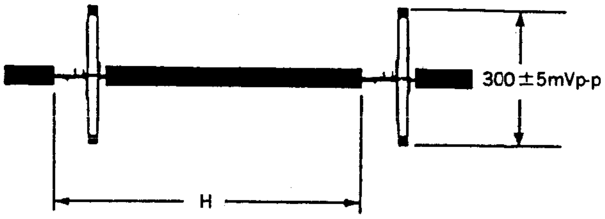


Fig. 8-28.

8-3-22. Brust HUE Adjustment (With Vectorscope)

Object	Color bar chart standard picture frame
Measurement point	VIDEO OUT terminal of the video block
Measuring equipment	Vectorscope
Adjustment address	17 (HUE CONT)
Specified value	135±1°

[Adjustment Method]

1) Select the adjustment address 17 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to the burst phase on the vectorscope becomes 135±1°.

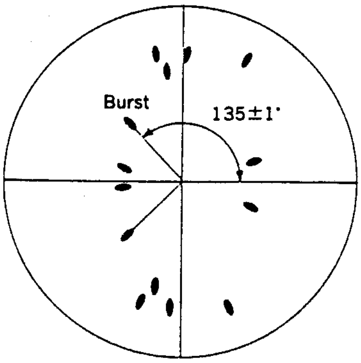


Fig. 8-29.

8-3-23. Pre-white Balance Adjustment (With Vectorscope)

Object	All white pattern
Measurement point	VIDEO OUT terminal of the video block
Measuring instrument	Vectorscope
Adjustment address	11 (R GAIN) 12 (B GAIN)
Specified value	The center of a white bright point must be within a circle of ϕ 1 mm centering around the origin

[Adjustment Method]

1) Select the adjustment address 11 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to coincide the white bright point with the origin.
3) Select the adjustment address 12.
4) Change the adjustment data to coincide the white bright point with the origin.
5) Repeat the steps 1) through 4).
6) Change the adjustment address in order to store the adjustment data.

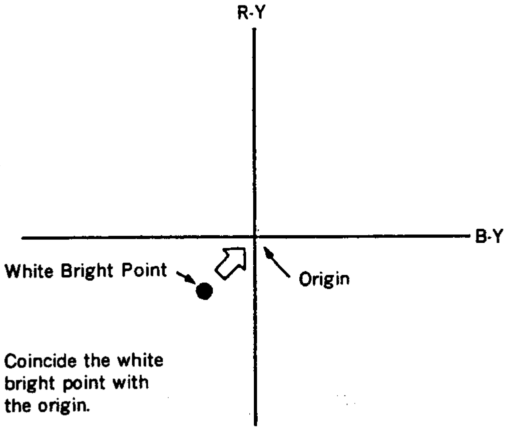


Fig. 8-30.

8-3-24. Pre-white Balance Adjustment (With Oscilloscope) (VC-55P Board)

Object	All white pattern
Measurement point	CN301 pin ① (C OUT)
Measuring instrument	Oscilloscope
Adjustment address	11 (R GAIN) 12 (B GAIN)
Specified value	Chroma signal amplitude minimum

[Adjustment Method]

1) Select the adjustment address 11 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to minimize a chroma signal amplitude.
3) Select the adjustment address 12.
4) Change the adjustment data to minimize the chroma signal amplitude.
5) Repeat the steps 1) through 4).
6) Change the adjustment address in order to store the adjustment data.

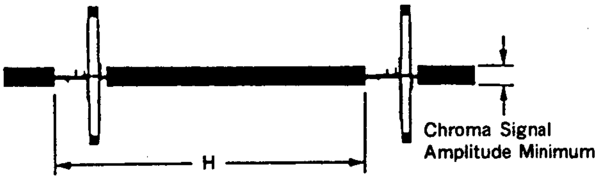


Fig. 8-31.

8-3-25. Color Reproducibility Adjustment (With Vectorscope)

Object	Color bar chart standard picture frame
Measurement point	VIDEO OUT terminal of the video block
Measuring instrument	Vectorscope
Adjustment address	05 (R-Y GAIN) 06 (B-Y GAIN) 07 (R-Y HUE) 08 (B-Y HUE)
Specified value	All color bright points must be within a color reproduction frame.

Note 1 : Burst level adjustment and pre-white balance adjustment must have been completed.

[Adjustment Method]

1) Adjust the PHASE and GAIN controls of the vectorscope to set the burst bright point to the specified position (maked by "▲") on the color reproduction frame.
2) Change the adjustment data of each adjustment address with the adjustment remote control to collect all the color bright points within the color reproduction frame.
3) Change the adjustment address in order to store the adjustment data.

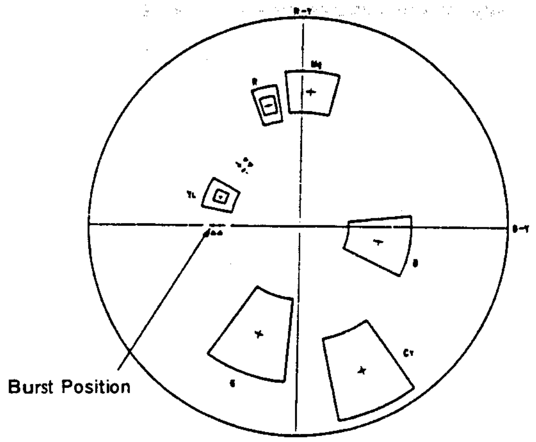


Fig. 8-32(a).

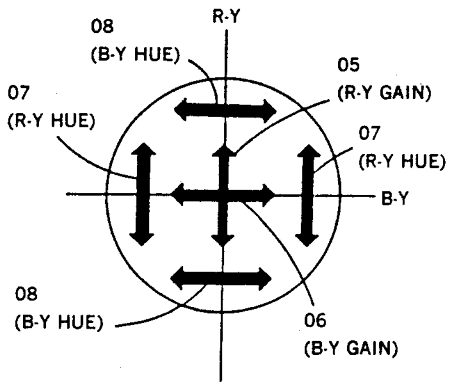


Fig. 8-32(b). Adjustment Addresses and Bright Point Moving Directions

8-3-26. Color Reproducibility Adjustment (With Oscilloscope)

(1) Gain Adjustment (VC-55P Board)

Object	Color bar chart standard picture frame
Measurement point	CN301 pin ① (C OUT)
Measuring instrument	Oscilloscope External trigger : CN301 pin ③ (Y OUT)
Adjustment address	05 (R-Y GAIN) 06 (B-Y GAIN)
Specified value	"Red" level : 592±32mVp-p "Yellow" level : 400±24mVp-p

Note 1 : Pre-white balance adjustment must have been completed.

[Adjustment Method]

1) Select the adjustment address 06 with the adjustment remote control and set the adjustment data to "E0"
2) Set the adjustment address to 07 and the adjustment data to "B0".
3) Set the adjustment address to 08 and the adjustment data to "B0"
4) Set the adjustment addess to 05, and changa the adjustment data to adjust the chroma signal "red" level to 592±32mVp-p.
5) Set the adjustment address to 06, and change the adjustment data to adjust the chroma signal "yellow" level to 400±24mVp-p.
6) Repeat the steps 4) and 5) until both specified values are met.
7) Change the adjustment address in order to store the adjustment data.
8) Make hue adjustment.

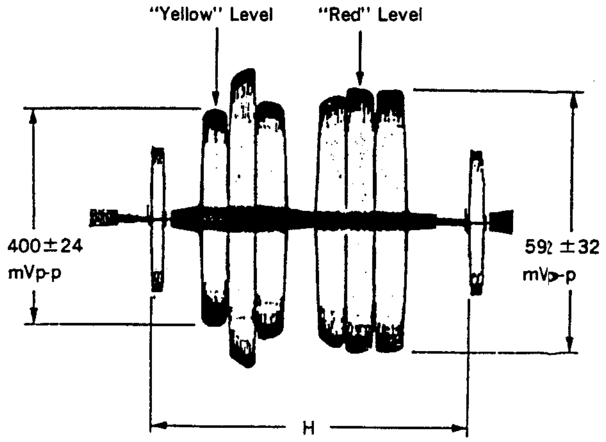


Fig. 8-33.

(2) Hue Adjustment

Object	Color bar chart standard picture frame
Measurement point	CH1 (X): CP-20P board pin ㉔ CH2 (Y): CP-20P board pin ㉕
Measuring instrument	Oscilloscope (X-Y mode)
Adjustment address	07 (R-Y HUE) 08 (B-Y HUE)
Specified value	Each color bright point must be within the color reproduction frame.

Note 1 : Pre-white balance adjustment must have been completed.

[Adjustment Method]

1) Coincide the "black" bright point on the oscilloscope with the origin of the color reproduction frame.
2) Change the adjustment data of the adjustment addresses 07 and 08 with the adjustment remote control to collect each color bright point within the color reproduction frame.
3) Confirm the hue reproduced on the monitor TV screen, and finely adjust the adjustment data of the adjustment addresses 07 and 08, if necessary.
4) Change the adjustment address in order to store the adjustment data.

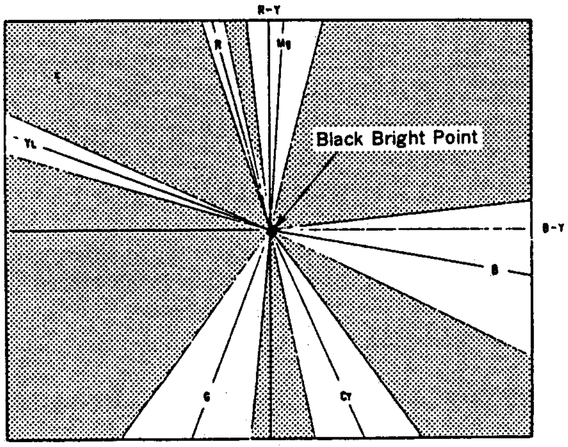


Fig. 8-34.

8-3-27. Auto White Balance Adjustment

Note 1 : Be sure to make "preset adjustment" and "auto white balance adjustment" in that order.

(1) Preset Adjustment (VC-55P Board)

Object	All white pattern

Note 1 : Make preset adjustment 30 seconds or more after turning on the power.

Note 2 : When redoing preset adjustment, turn off the power once, and then, turn it on again.

Preparation : Prepare to connect the checkpoint array pin (B5) (AWB ADJ) and W302 pin ⑧ (SS 5V) with a jumper wire.

[Adjustment Method]

1) Turn off/on the power.
2) Check that the EVR ADJ mode is normal. (pin (B6) (CAM ADJ) open)
3) Connect the checkpoint array pin (B6) (CAM ADJ) and GND with a jumper wire.
4) Connect the checkpoint array pin (B5) (AWB ADJ) and W302 pin ⑧ (SS 5V) with a jumper wire.
5) Select the adjustment address 89 (AWB MODE) with the adjustment remote control and set the adjustment data to E0. Wait for 5 seconds or more.
6) Change the adjustment address in order to store the adjustment data. Wait for 5 seconds or more.
7) Remove the jumper wire from the checkpoint array pin (B5) (AWB ADJ).
8) Make auto white balance adjustment.

(2) Auto White Balance Adjustment (VC-55P Board)

Note 1 : Be sure to make this adjustment after preset adjustment.

Object	All white pattern
Filter	Color temperature compensation filter C14
Measuring instrument	Oscilloscope (X-Y mode) Note 1
Measurement point	CH1 (X): CP-20P board pin ㉔ (B-Y) CH2 (Y): CP-20P board pin ㉕ (R-Y)
Adjustment address	01 (DELTA R) 02 (DELTA B) 80 (R OUTDOOR) 81 (B OUTDOOR) 76 (R DWN LMT) 78 (R OUT LMT) 77 (B UP LMT) 79 (B OUT LMT) 80 (R OUT DOOR) 81 (B OUT DOOR) 89 (AWB MODE)
Specified value	The white and black bright points must coincide.

Note 1 : Also adjustable with the vectorscope. When using the vectorscope, connect it to the VIDEO OUT terminal of the video block.

Note 2 : All calculation in the text are calculated in decimal numbers.

[Adjustment Method]

1) Select the adjustment address 89 (AWB MODE) with the adjustment remote control and enter the adjustment data 10.
2) Cover the lens with the C14 filter.
3) Change the adjustment data of the adjustment addresses 01 and 02 with the adjustment remote control to coincide the white and black bright points. (when the vectorscope is used, coincide the white bright point with the origin.)
   At this time, assume the data of the adjustment address 01 as C_1 and that of the adjustment address 02 as C_2.
4) Convert C_1 into a decimal number to assume it as C_1', and C_2 as well as C_2'. (Refer to Table 8-5 "Hexadecimal-Decimal Conversion Table")
5) Obtain D_{76}' by the following formula.
   $D_{76}' = C_1' - 10$
6) Convert D_{76}' into a hexadecimal number and assume its value as D_{76}. (Round fractions below a decimal number to the nearest whole number)
7) Select the adjustment address 76 and enter the adjustment data D_{76}.
   Select the adjustment address 78 and enter the adjustment data C_1.
8) Obtain D_{77}' by the following formula.
   $D_{77}' = (C_2' - 48) \div 1.8 + 48$
   $D_{79}' = C_2' + 6$
9) Convert D_{77}' and D_{79}' into hexadecimal numbers and assume their values as D_{77} and D_{79}' respectively.
10) With the adjustment remote control, enter D_{77} and D_{79} to the adjustment addresses 77 and 79, respectively.
11) Obtain D_{80}' and D_{81}' by the following formulas.
    $D_{80}' = C_1' + 1$
    $D_{81}' = C_2' + 3$
12) Convert D_{80}' and D_{81}' into hexadecimal numbers and assume their values as D_{80} and D_{81}, respectively. (Round fractions below a decimal point to the nearest whole number)
13) Select the adjustment address 80 and enter the adjustment data D_{80}. Select the adjustment address 81 and enter the adjustment data D_{81}. (outdoor white balance adjustment)
14) Select the adjustment address 89 and enter the adjustment data F0.
15) Change the adjustment addresses 01 and 02 with the adjustment remote control to coincide the white and black bright points.
    (When the vectorscope is used, coincide the white bright point with the origin.)
16) Select the adjustment address 89 and enter the adjustment data 00.
17) Change the adjustment address in order to store the adjustment data.

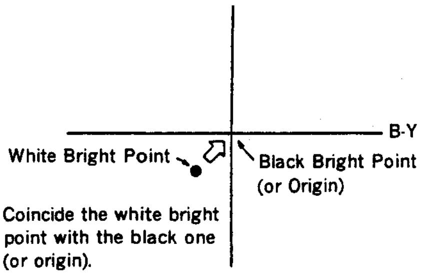


Fig. 8-35.

8-3-28. Outdoor White Balance Check

Object	White pattern standard picture frame
Filter	Color temperature compensation filter C14
Measurement point	When the vectorscope is used; VIDEO OUT terminal of the video block When the oscilloscope (X-Y mode) is used; CH1 (X): VC-55P board CP-20P pin ㉔ (B-Y) CH2 (Y): VC-55P board CP-20P pin ㉕ (R-Y)
Measuring instrument	
Specified value	Refer to Fig 8-36

[Connection Method]

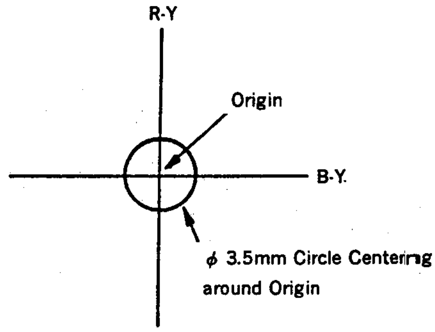
1) Remove the jumper wire from the checkpoint array pin (B6) (CAM ADJ). (Turn off the EVR adjustment mode)

[Check Method]

1) Press the White Balance button to select the outdoor white balance mode. (A mark "☼" appears on the EVF screen or monitor screen (when the data screen is turned on)).
2) Check that the center of the white bright point is within the circumference shown in Fig. 8-36.

Note: When using the vectorscope, adjust in advance the GAIN and PHASE controls of the vectorscope so that the burst bright point will coincide with the burst position (marked by "Δ") of the color reproduction frame.

For the Vectorscope



For the Oscilloscope

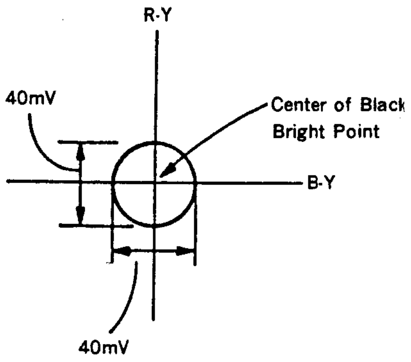


Fig. 8-36.

8-3-29. Focus Motor Speed Adjustment (AF-47P Board)

Object	Optional
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig
Adjustment address	26 (FOCUS SPEED)
Specified value	Average value of jig indicated data =8± 0.5

Reference : A rotation time is about 2.5 seconds from the focusing ring short distance end to long distance end after completing adjustment.

[Adjustment Method]

1) **Press the FOCUS button (FD-14P board S109) to turn on auto focus.**
2) Select the adjustment address 37 with the adjustment remote control and enter adjustment data 01. (setting of the hunting mode)
3) Set the adjustment address to 26.
4) Change the adjustment data so that the AF microcomputer data reader jig indicates 08 while the focusing ring is rotating.
5) While the focusing ring is rotating, press the HOLD button of the AF microcomputer data reader jig to read an indicated value.
6) Repeat the step 5) 10 times and obtain an average value.
   Specified value=9.0±0.5
   When the specified value is not met, repeat the steps 3) and 4).
7) Set the adjustment address to 37 and the adjustment data to 00. (cancellation of the hunting mode)
8) Change the adjustment address in order to store the adjustment data.

8-3-30. Macro Area Adjustment (AF-47P Board)

Object	Optional
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig
Adjustment address	39 (MACRO)
Specified value	Value at the zoom ring WIDE end

[Adjustment Method]

1) Set the zoom ring at the WIDE end (11 mm side).
2) Select the adjustment address 37 with the adjustment remote control and set the adjustment data to 03. (setting of the zooming position display mode)
3) Read the data displayed by the AF microcomputer data reader jig. (If normal, data 02-0F is dispalyed.)
4) Change the adjustment address to 39.
5) Enter the data read from the jig as adjustment data.
6) Change the adjustment address to 37 and set the adjustment data to 00. (cancellation of the zoom position display mode)
7) Change the adjustment address in order to store the adjustment data.

8-3-31. Auto Focus LLA Adjustment (AF-47P Board)

Object	All black (Cover the lens with a black cap)
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig
Adjustment address	38 (LLA)
Specified value	(Jig indicated value) −2

[Adjustment Method]

1) Select the adjustment address 37 with adjustment romote control and set the adjustment data 0B. (setting of the auto focus LLA adjustment mode)
2) Read the data displayed by the AF microcomputer data reader jig and assume this value as D.
3) Assume a value of D-2 as LLA data. (Refer to Table 8-5 "Hexadecimal-Decimal Conversion Table")
   Example : When D=30 (48), LLA data is 2E (46).
   Example : When D=31 (49), LLA data is 2F (47).
   * Decimal converted values in parentheses
4) Select the adjustment address 38 with the adjustment remote control and enter LLA data as adjustment data.
5) Select the adjustment address 37 and set the adjustment data to 00. (cancellation of the auto focus LLA adjustment mode)
6) Change the adjustment address in order to store the adjustment data.

8-3-32. Auto Focus Adjustment

(1) Preparation for AF Data Entry (AF-47P Board)

Object	All black (Cover the lens with a black cap), all white pattern
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig (AF jig)
Adjustment address	45 (FH B) 44 (FA B) 55 (AGC B) 52 (FH W)
Specified value	FH B≦1C FA B≦1C FH W≦0F FA W≦0F

[Adjustment Method]

1) **Turn off auto focus with the FOCUS button (FD-14P board S109).**
2) Cover the lens with a black cap.
3) Select the adjustment address 37 with the adjustment remote control and set the adjustment data to FF.
4) Read the AF microcomputer data reader jig and enter this data (FH B) to the adjustment address 45. (FH B should be 00 to 1C.)
5) Select the adjustment address 37 and set the adjustment data to FD.
6) Read the AF microcomputer data reader jig and enter this data to the adjustment address 44. (FA B should be 00 to 1C.)
7) Select the adjustment address 37 and set the adjustment data 0B.
8) Read the AF microcomputer data reader jig and enter this data (AGC B) to the adjustment address 55.
9) Remove the black cap from the lens and pick up an image with a white pattern (pattern box).
(When this is done, check that the white diffusion plate for the pattern box is not dirty.)
10) Select the adjustment address 37 and set the adjustment data to FF.
11) Read the AF microcomputer data reader jig and enter this data (FH W) to the adjustment address 52. (FH W should be 00 to 0F.)
12) Select the adjustment address 37 and set the adjustment data to FD.
13) Read the AF microcomputer data reader jig and check this data (FA W). (FA W should be 00 to 0F.)
14) Select the adjustment address 37 and set the adjustment data 0B.
15) Read the AF microcomputer data reader jig and enter this data (AGC W) to the adjustment address 54.
16) Change the adjustment address in order to store the adjustment data.

(2) Auto Focus Adjustment (AF-47P Board)

Object	Siemens star (1.5m in front of the lens datum level (marked by "Φ")
Measurement point	CN455
Measuring instrument	AF microcomputer data reader jig (AF jig)
Adjustment address	43 (FH SM) 47 (GETA H) 50 (KATAMUKI) 42 (FA SM) 41 (LOW CONT) 49 (STEP)
Specified value	10≦FH SM≦40 40≦FA SM≦80

[Measurement Methed]

1) Place the Siemens star at a distance of 1.5m in front of the lens datum level (refer to Fig. 8-2).
2) **Shift the zoom lever to the TELE end (88mm) and turn off auto focus with the FOCUS button (FD-14P board S109).**
3) Adjust a camera block position to center the Siemens star on the monitor screen with the monitor screen.
4) Cover the lens with the ND filter 1.4 (1.0+0.4).
5) Set the focusing ring at the short distance end (1.3m), pick up an image of the Siemens star with the standard picture frame, and turn on auto focus with the FOCUS button.
6) After 2.5 seconds, check that the image of the Siemens star is clearly picked up, and then, press the FOCUS button to turn off auto focus. (AF microcomputer data M should be 5.)
7) With the adjustment remote control, select the adjustment address 37 and enter the adjustment data FF. (The auto focus filter is fixed at the FH side.)
8) Read the AF jig. Convert this data D into a decimal number and assume it as D′. Obtain FH SM′ by the following formula.
FH SM′ =D′/2.5
Convert FH SM′ into a hexadecimal number and obtain FH SM.
(Round fractions below a decimal point to the nearest whole number. FH SM should be 10 to 40.)
9) Enter FH SM to the adjustment address 43.
10) With the adjustment remote control, select the adjustment address 37 and enter the adjustment data FD. (The auto focus filter is fixed at the FA side.)
11) Read the AF jig, convert this data D into a decimal number and assume it as D′. Obtain FA SM′ by the following formula.
FA SM″=D′/1.6
Convert FA SM′ into a hexadecimal number to obtain FA SM.
(Round fractions below a decimal point to the nearest whole number. FA SM should be 40 to 80.)

12) Enter FA SM to the adjustment address 42.
13) Select the adjustment address 47 and enter the following adjustment data. GETA H=FH B+2
(FH B is the data of the adjustment address 45)
14) Select the adjustment address 41 and enter the following adjustment data. LOW CONT=FA B+3
(FA B is the data of the adjustment address 44)
15) Convert hexadecimal numbers FA SM, FH SM and FH B into decimal numbers and assume their values as FA SM', FH SM' and FH B', respectively.
Obtain STEP by the following formula.

$$k'=\frac{\text{FA SM}'-32}{\text{FH SM}'-\text{FH B}'-4}$$

Obtain entry data out of the table below, depending on a value of k'.

	k'≦4	4<K'≦8	8<k'
Entry data	02	03	04

16) Select the adjustment address 49 and enter the data obtained in 18).
17) Obtain KATAMUKI (TILT) by the following formula. (FA SM', FH SM' and FH B' are the same as those above)

$$k'=\frac{\text{FA SM}'-32}{\text{FH SM}'-\text{FH B}'-4}$$

Obtain entry data out of the table below, depending on a value of k'.

	k"≦2	2<k"≦4	4<k"≦8	8≦k"
Entry data	06	04	02	01

18) Select the adjustment address 50 and enter the data obtained in the step 20).
19) Select the adjustment address 37 and set the data to 00.
20) Change the adjustment address in order to store the adjustment data.

8-3-33. Auto Focus Check

Object	Siemens star (at a distance of 1.5m in front of the lens datum level (marked by "Φ"))

Note 1 : Connect the EVF (Electronic View Finder) to make adjustment.

[Measurement Methed]

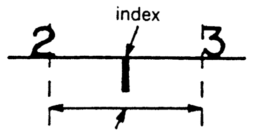
1) Place the Siemens star at a distance of 1.5m in front of 1.5m in front of the lens datum level (refer to Fig.8-2).
2) Shift the zoom lever to the TELE end (88mm).
3) Adjust a camera block position to center the Siemens star on the monitor screen with the monitor screen.
4) **Open the iris with the IRIS knob (FD-14P board RV101).** When this is done, adjust the illumination for the Siemens star or cover the lens with the ND filter so that the clearest image can be obtained on the monitor TV screen.
5) **Turn off auto focus with the FOCUS button (FD-14P** board S109).
6) Turn the focusing ring as far as the short distance end (1.3m).
7) **Press the PUSH AUTO button (FD-14P board S114).**
8) After 5 seconds, check that a clear image can be obtained and AF microcomputer data M can be 5.
9) Turn off auto focus and turn the focusing ring as far as the long distance end (∞).
10) Press the PUSH AUTO button.
11) After 3.5 seconds, check that a clear image can be obtained.

8-3-34. AF-Zooming Check

Object	Siemens star (at a distance of 1.5m in front of the lens datum level (marked by "Φ"))
Measurement point	Lens focusing ring and zoom ring
Specified value	Focus ring can be stopped between 2 to 3 within 2.5 seconds. (See Fig-Ⓐ)

[Check Method]

1) Turn off auto focus and turn the focusing ring as far as the long distance end (∞).
2) At a WIDE end, following turn on auto focas switch, focus ring can be stopped between 2 to 3 (See Fig-Ⓐ) within 2.5 seconds.
3) Turn off auto focus and turn the focusing ring as far as the long distance end (Near).
4) Repeat step 2).

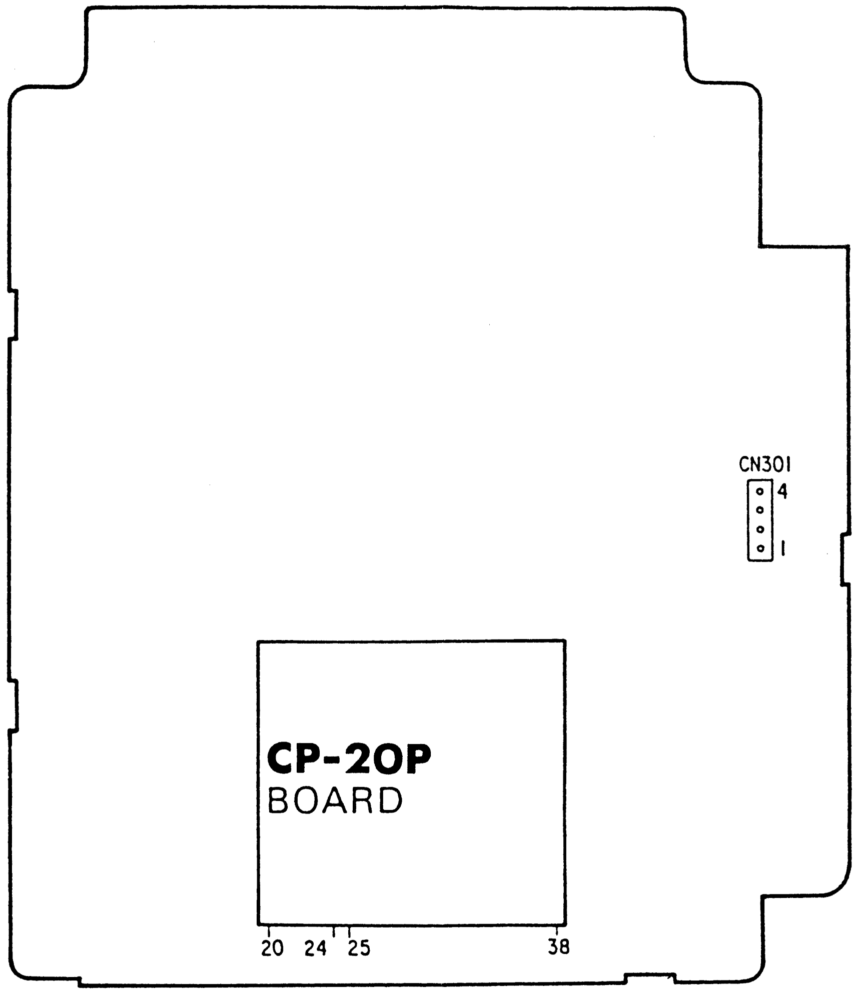


The focusring should stop within this range.

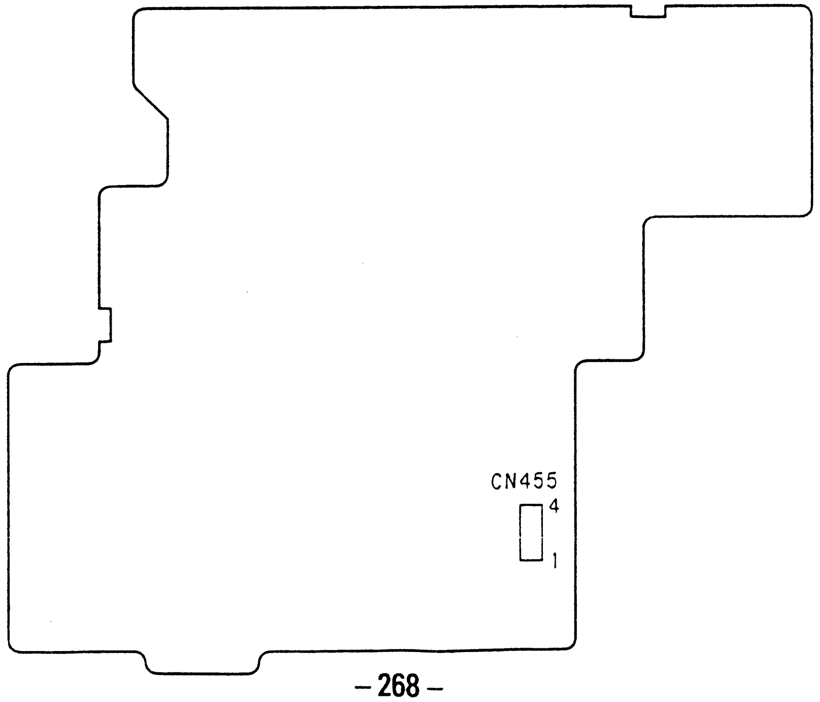
Fig. Ⓐ

8-4. ADJUSTMENT PART LOCATION DIAGRAM

VC-55P BOARD (Component Side)



AF-47P BOARD (Component Side)



1.5m in
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Fig.8-2).
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as far as

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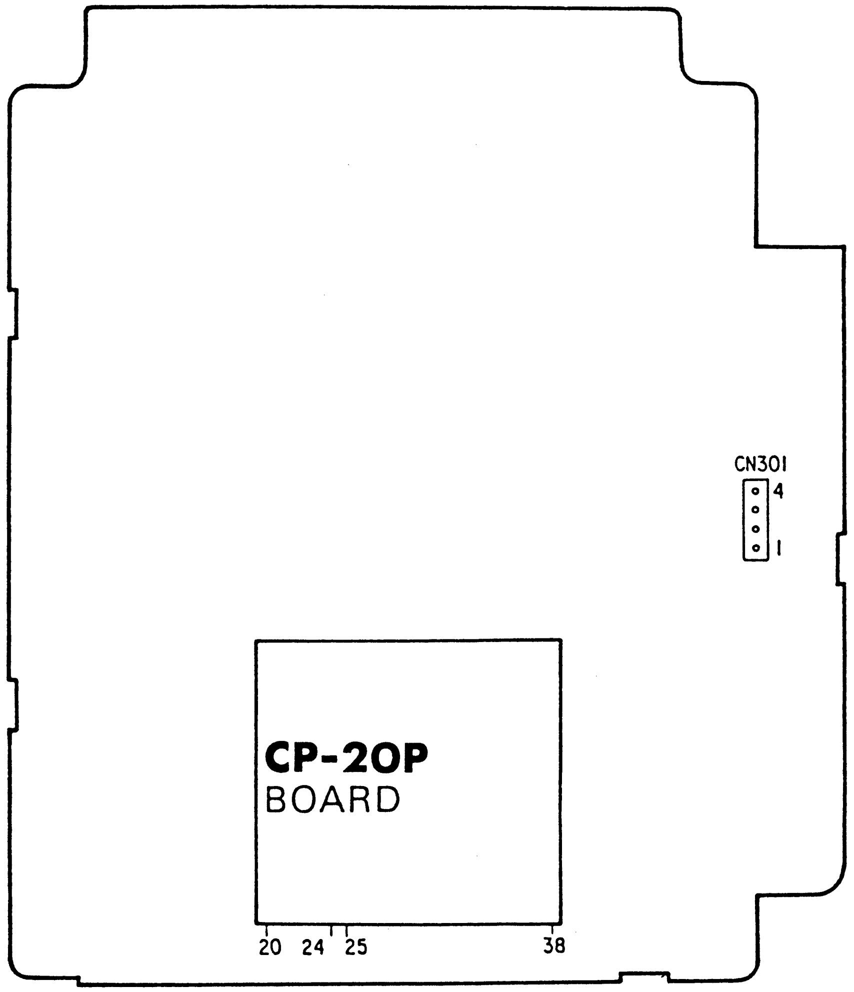
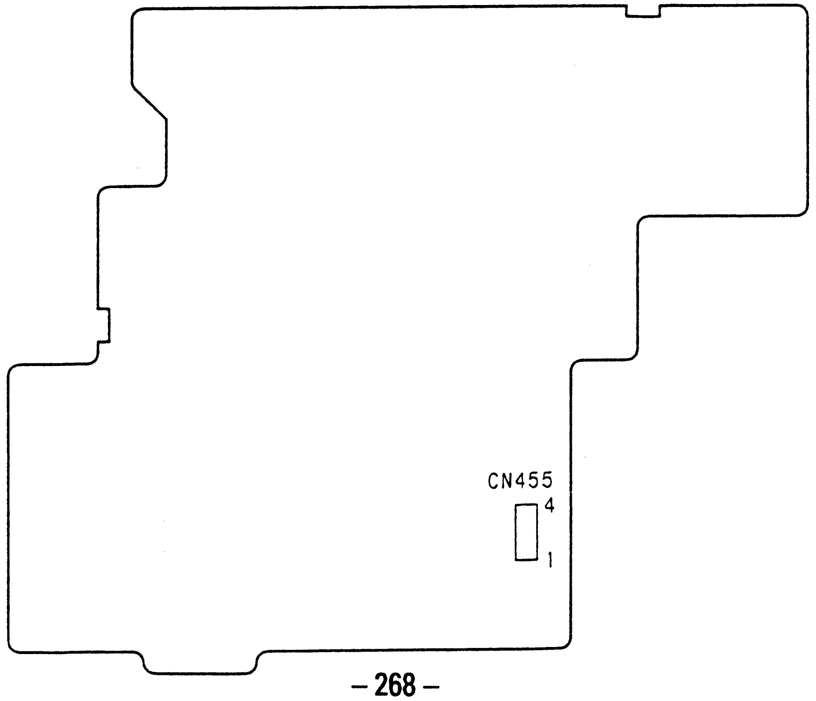
as far as

8-4. ADJUSTMENT PART LOCATION DIAGRAM

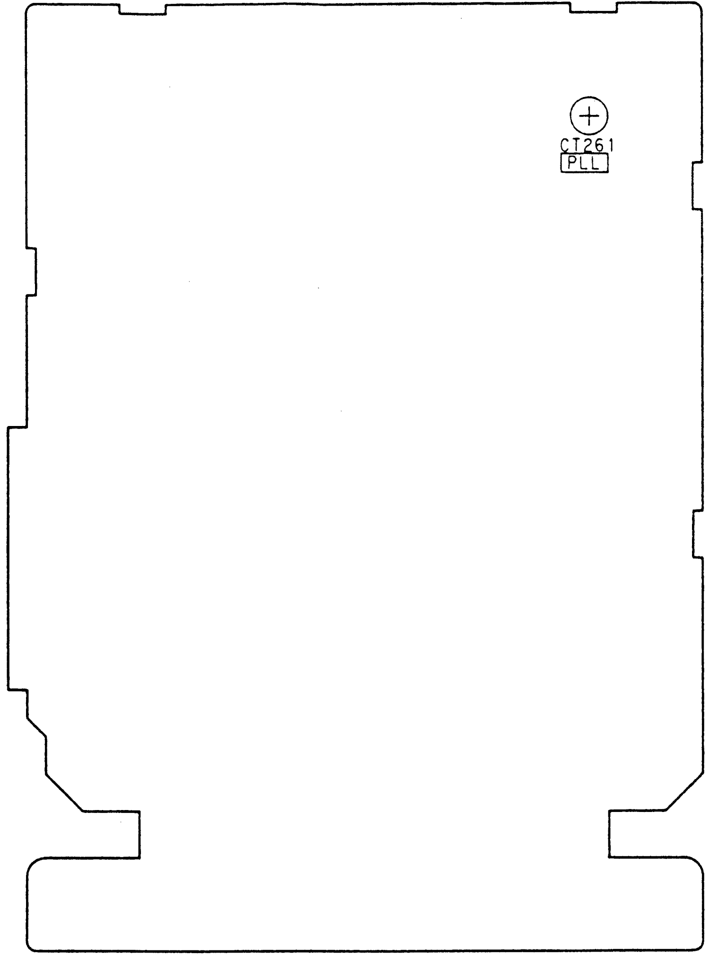
VC-55P BOARD (Component Side)


CN301
4
1
CP-20P
BOARD
20
24
25
38

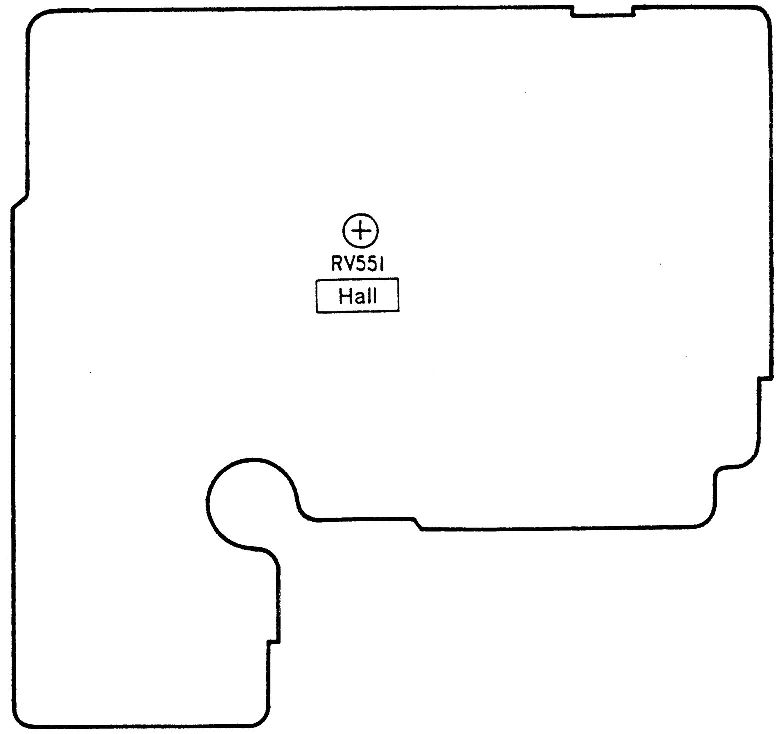
AF-47P BOARD (Component Side)



VC-54P BOARD (Component Side)



DM-23P BOARD (Conductor Side)



SECTION 9
ELECTRICAL ADJUSTMENT OF VIDEO BLOCK

See the adjusting part location diagram from on page 298 for the adjustment

The following measuring instruments are used for adjustment of the VTR block.

[Measuring Instruments Used]

1) Monitor TV
2) Dual-trace oscilloscope, band width of 10MHz or more, with delay mode (use a probe 10 : 1, unless otherwise specified)
3) Frequency counter
4) Pattern generator (with video output terminal ; refer to 9-1-1 "Equipment Connection")
5) Digital voltmeter
6) Audio generator
7) Auido level meter
8) Audio distortion meter
9) Audio attenuator
10) Stabilized power supply
11) Alignment tape

    For tracking adjustment
    (WR5-1CP) Part No. : 8-967-995-07
    For video frequency characteristic adjustment
    (WR5-7CE) Part No. : 8-967-995-18
    For L mode operation check
    For SP (WR5-5CSP) Part No. : 8-967-995-46
    (WR5-4CSP) Part No. : 8-967-995-47
    For LP (WR5-4CL) Part No. : 8-967-995-56
    For E mode operation check (ME tape)
    For SP (WR5-8CSE) Part No. : 8-967-995-48
    For LP (WR5-8CLE) Part No. : 8-967-995-57

12) Extension cables

    1. **1.25mm-pitch 7-pin flat extension cable between the DC-DC converter CN011 and FD-14P board W101;**
       Part No.: J-6082-033-A
    2. **1.25mm-pitch 8-pin flat extension cable between the DC-DC converter CN010 and SS-96P board W005;**
       Part No.: J-6082-032-A
    3. **1mm-pitch 20-pin flat extension cable between the FD-14P board W901 and VI-71 board CN403;**
       Part No.: J-6082-031-A
    4. **1mm-pitch 11-pin flat cable between the FD-14P board CN101 and SS-96P board W002;**
       Part No.: J-6082-013-A

[Precautions for Adjustment]

Except "battery down adjustment" of system control system adjustment, the video block can be also adjusted with the camera block removed. When removing the camera block, disconnect the following 5 connectors.
The DC-DC converter must be connected to the VTR block. Use the extension cables mentioned in [Measuring Instruments Used] , item 12) as required.

1. **DC-DC converter CN013**
2. **FD-14P board CN161**
3. **VC-55P board CN301**
4. **AF-47P board CN454**
5. **DM-23P board CN550**

The Time code block (TC-11P board) is required only for index system adjustment. When removing the index block, disconnect the following connectors of the TC-11P board.

1. **CN002**
2. **CN003**

The EVF (Electronic View Finder) block is not required for video block adjustment. When removing the EVF block, disconnect the following connectors.

1. **FD-14P board CN903**

The microphone board (MC-40P board) is not required for video block adjustment. When removing the microphone board, disconnect the following connectors.

1. **MC-40P board CN702**
2. **MC-40P board CN703**

Set the following switch as follows:

1. **HI8 (L/E mode selector) switch (PJ-21P board S902)**
   ....AUTO (E mode)

9-1. PREPARATION

9-1-1. Equipment Connection

Connect the measuring instruments as shown in Fig. 9-1 in accordance with indication of an input terminal (S VIDEO or VIDEO), **and shift the CAMERA/VTR switch (FK-11P board** S095) to VTR to make adjustment. The input terminal is specified in parentheses at the signal blank. When not specified, either input terminal may be used. The S VIDEO IN terminal has priority. When making adjustment with VIDEO IN terminal input, pull out a connector from the S VIDEO IN terminal.

Note 1 : When VIDEO input is used for adjustment where S VIDEO input is specified, the specifications of this equipment may not be satisfied. Be sure to follow instructions.

Note 2 : When adjustment is made using the Y/C Separation JIG or VTR with S video output terminal as a signal source, the performance of this equipment is affected by that VTR. Use the pattern generator with Y/C separator output terminal as much as possible.

Note 3 : When the equipment is not provided with the input terminal, input with the connection as shown in Fig. A. In this case, perform the connection of the REC mode and the E-E mode with the CAM REC mode and the CAM STANDBY mode.

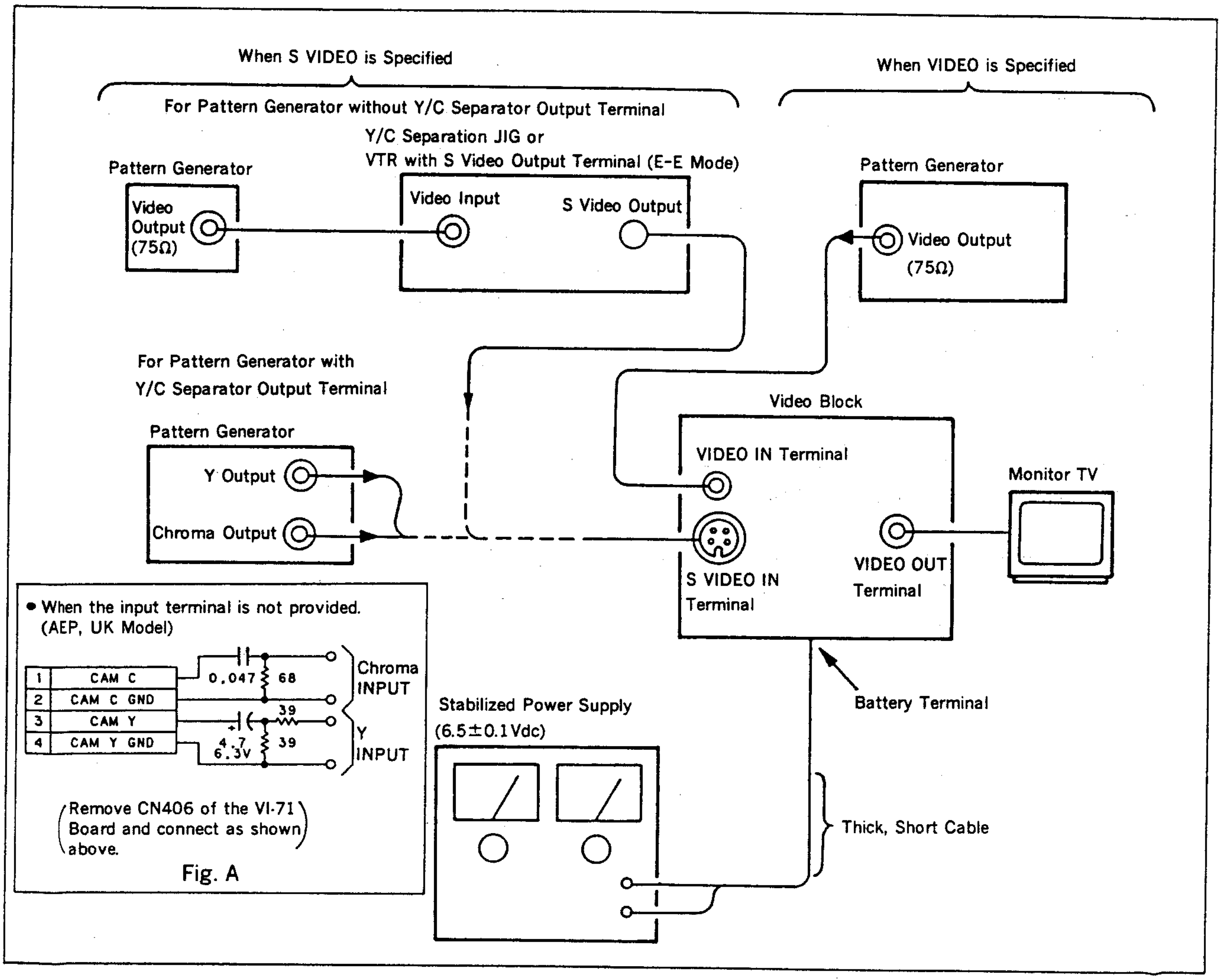
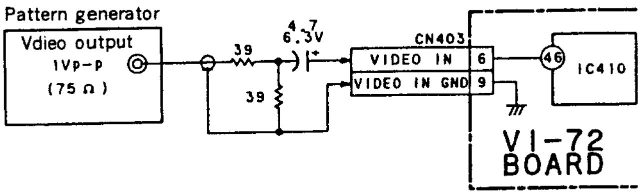

When S VIDEO is Specified
For Pattern Generator without Y/C Separator Output Terminal
Y/C Separation JIG or
VTR with S Video Output Terminal (E-E Mode)
Pattern Generator
Video Output (75Ω)
Video Input
S Video Output
When VIDEO is Specified
Pattern Generator
Video Output (75Ω)
For Pattern Generator with
Y/C Separator Output Terminal
Pattern Generator
Y Output
Chroma Output
Video Block
VIDEO IN Terminal
S VIDEO IN Terminal
VIDEO OUT Terminal
Monitor TV
Battery Terminal
Stabilized Power Supply (6.5±0.1Vdc)
Thick, Short Cable
• When the input terminal is not provided. (AEP, UK Model)
1 CAM C
2 CAM C GND
3 CAM Y
4 CAM Y GND
0.047
68
39
4.7 6.3V
39
Chroma INPUT
Y INPUT
(Remove CN406 of the VI-71 Board and connect as shown above.)
Fig. A

Fig. 9-1

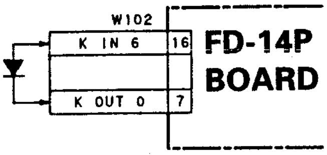
- Video signal input for model not provided with extevnel input terminals.


Pattern generator
Vdieo output
1Vp-p
(75 Ω)
39
4.7
6.3V
39
CN403
VIDEO IN
6
VIDEO IN GND
9
46
IC410
VI-72
BOARD

1) Connect Q644 base and GND with a jumper on the VI-72 board.
2) Connect Q613 base and emitter with a jumper on the VI-72 board.

- **Setting the REC mode in models without external input terminals.**

1. **Connect Pins 7 and 16 of the FD-14P board with a diode (ISS119, etc.) until the unit enters the REC mode.**


W102
K IN 6
16
K OUT 0
7
FD-14P
BOARD

9-1-2. Input Signal Check

Video signals from the pattern generator are used as adjustment signals for adjustment of the VTR block. These video output signals should be within the required standard.

1) **For S VIDEO input**

Connect an oscilloscope to the Y signal terminal of the S Video in terminal (PJ-21P board J901 (No mount)) and check that a Y signal has an amplitude of about 0.3 Vp-p, and an image amplitude is about 0.7 Vp-p. (When the VTR with S video output terminal is used, check also that neither chroma signal nor burst signal is remaining.) Also, connect the oscilloscope to the chroma signal terminal of the S video in terminal and check that the burst signal for the chroma signal has a flat amplitude of about 0.3 Vp-p. Fig. 9-2 shows the Y and chroma signals used for adjustment.

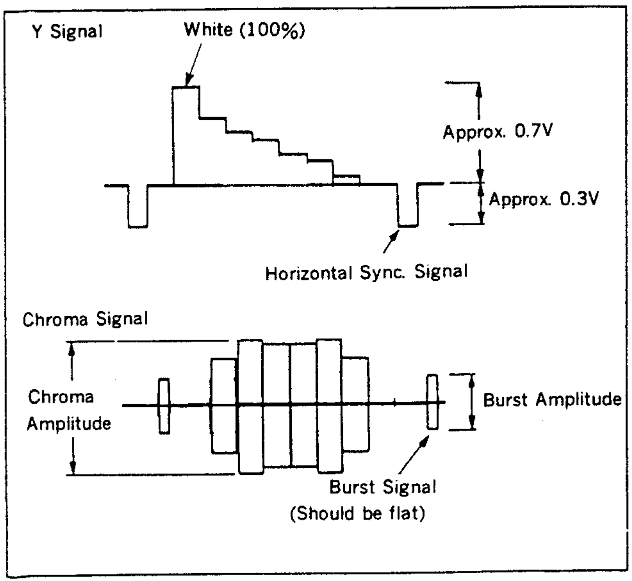

Y Signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal Sync. Signal
Chroma Signal
Chroma Amplitude
Burst Amplitude
Burst Signal
(Should be flat)

Fig. 9-2. Pattern Generator Color Bar Signals

2) **For VIDEO input**

Connect the oscilloscope to the Video in terminal (PJ-21P board J902 (No mount)) and check that a video signal sync. signal amplitude is approx. 0.3V, image amplitude approx. 0.77V, and burst signal amplitude approx. 0.3V and flat and respectively.

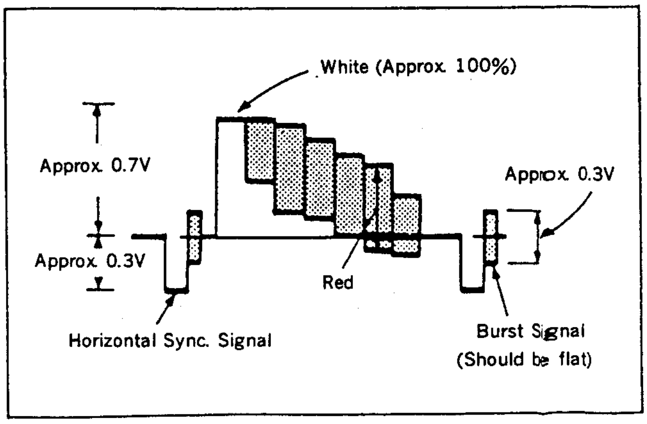

White (Approx. 100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal Sync. Signal
Burst Signal
(Should be flat)

Fig. 9-3. Pattern Generator Color Bar Signal

[Alignment Tape]

The following alignment tapes are provided. Use the alignment tape specified in the signal blank for each adjustment.

When using the operation checking tape for adjustment and no type is specified, you can use any operation checking tape.

Tape	Recording Mode	Tape Type	Tape Speed	Recording content		Use
				Video Area	PCM Area (Audio)	
Tracking WR5-1CP	L	MP	SP	CH2 : 1 MHz tape path adjustment signal, Switching position adjustment marker (CH1 : 9MHz)		Tape path adjustment, Switching position adjustment
Video frequency characteristic WR5-7CE	E	ME	LP	RF sweep 0~15MHz Marker 2, 4.5, 7, 8.5, 10MHz		Frequency characteristic adjustment
Operation checking WR5-3CSP or WR5-5CSP	L	MP	SP	• Video signal Color bar : 4min. Monoscope : 4min. • Audio signal (AFM) 400Hz, 60%modulation	Monoscope portion 20Hz, 20sec. 400Hz, 20sec. 14kHz, 20sec. Repeat 4 times Color bar portion 1kHz, 4min.	Operation checking
WR5-8CSE	E	ME	SP		400Hz, 8min	
WR5-3CL	L	MP	LP	• Video signal Color bar : 4min. Monoscope : 4min. • Audio signal (AFM) 400Hz, 60%modulation		
WR5-8CLE	E	ME	LP		400Hz, 8min	

Note: Recording modes
L .... Conventional mode
E .... hi8 (high band) mode

Tape types
MP .... Coated metal tape
ME .... Evaporated metal tape

Fig. 9-4 shows the color bar signal recorded in the alignment tape.

Note: Measure at the VIDEO OUT terminal (terminated at 75Ω).

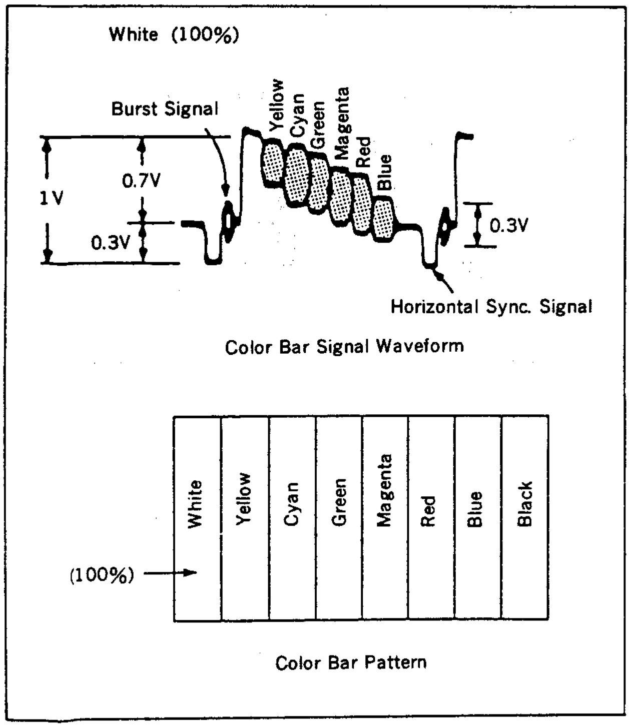

White (100%)
Burst Signal
Yellow
Cyan
Green
Magenta
Red
Blue
1V
0.7V
0.3V
0.3V
Horizontal Sync. Signal
Color Bar Signal Waveform
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
(100%)
Color Bar Pattern

Fig 9-4. Alignment Tape Color Bar Signal

[I/O Level and Impedance]

Video output	phono jack	
	Output signal :	1 Vp-p, 75Ω unbalance, sync. negative
S video output	(4-pin mini-DIN)	
	Luminance signal :	1 Vp-p, 75Ω unbalance, sync. negative
	chroma signal :	0.3 Vp-p, 75Ω unbalance
Audio output	phono jack	
	Specified output :	−7.5dBs (at 47kΩ load)
	Output impedance :	2.2kΩ or less

9-1-3. Recording Mode (E Mode/L Mode) Changeover

The recording mode of this equipment is changed over as shown in the table below. The playback mode (E mode/L mode) is automatically changed over depending on the recording mode for the tape to be played back.

hi8 Switch (L Mode/E Mode Selector Switch) (PJ-21P Board S902)	CAMERA/VTR Power Switch **(FK-11P Board** S095)	S VIDEO IN Terminal (PJ-21P Board J901)	Tape Used	Recording Mode
AUTO (E mode)	CAMERA	Irrelevant	ME	E
			MPHG	
			MP	L
	VTR	Connector inserted	ME	E
			MPHG	
			MP	L
		Nothing inserted	ME	L
			MPHG	
			MP	
OFF (L mode)	Irrelevant	Irrelevant	ME	L
			MPHG	
			MP	

9-1-4. Recording Mode Adjustment

When the equipment is not provided with the input terminal (AEP, UP Model), adjust the Recording mode and the E-E mode with the CAM REC mode and the CAM STANDBY mode.

9-1-5. Service Mode

For details, refer to SECTION 10. SERVICE MODE.

9-2. POWER SUPPLY CHECK

9-2-1. Supply Voltage Check (DC-DC Converter)

Mode	E-E
Measuring instrument	Digital voltmeter
SS 5V check	
Measurement point	CN010 pin ①, CN011 pin ⑦
Specified value	4.90±0.15Vdc
VI 5V check	
Measurement point	CN010 pin ③,④
Specified value	4.90±0.15Vdc
AUDIO 5V check	
Measurement point	CN010 pin ⑧
Specified value	4.90±0.15Vdc
EVF 5V check	
Measurement point	CN011 pin ④
Specified value	4.90±0.15Vdc

[Check Method]

1) Each supply voltage must meet its specified value.

9-3. ADJUSTMENT OF SYSTEM CONTROL SYSTEM

9-3-1. Clock Accuracy Adjustment (FD-14P Board)

Mode	E-E
Measurement point	IC101 pin (69) (check land "X'tal")
Measuring instrument	Frequency counter
Adjustment element	CT101
Specified value	$512.004^{+0.001}_{-0.002}$ Hz

[Adjustment Method]

1) Adjust to $512.004^{+0.001}_{-0.002}$ Hz with CT101.

9-3-2. Battery Down Adjustment (SS-96P Board)

Note : Connect the camera block for adjustment.

Mode	E-E
Measurement point	Check with the adjustment remote control
Measuring instrument	
Adjustment element	RV001
Specified value	2:81

[Connection]

1) As shown in Fig. 9-5, connect the stabilized power supply and digital voltmeter.

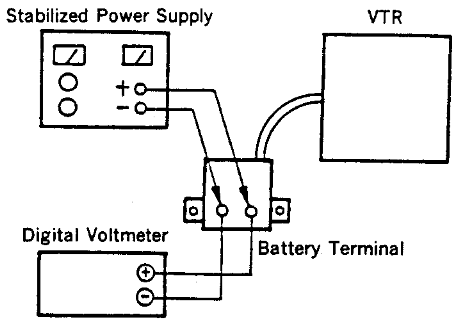
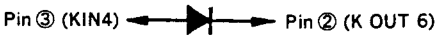


Fig. 9-5.

2) **Connect the FC-26P board CN096 with a diode (ISS119** or its equivalent) (test mode 1).



[Adjustment Method]

1) Adjust the supply voltage to 5.48±0.01Vdc.
2) Select Category 1 of the adjustment remote control to display a battery voltage. (Refer to [Service mode] .)
3) With RV001, adjust the indication of the LCD display to 2 : 83, and then adjust to 2 : 81. (to the point where the indication is changed from 2 : 82 to 2 : 81)

9-3-3. Battery Down Check

Note : Connect the camera block for adjustment.

Mode	Camera REC
Measurement point	**Check with the LCD display on the FD-14P board.**
Measuring instrument	
Specified value	Battery pre-end indication at $5.64^{+0.01}_{-0.04}$ Vdc (* 1) Battery end indication at 5.48±0.01Vdc (* 2)

* 1 : The mark 🪫 on the LCD blinks slowly.

* 2 : The mark 🪫 on the LCD blinks quickly.

[Connection]

1) As shown in Fig. 9-5, connect the stabilized power supply and digital voltmeter.
2) Remove the diode conncted in battery down adjustment.

[Check Method]

1) Adjust the supply voltage to 6.5±0.1Vdc and select the camera REC mode.
2) Lower the supply voltage slowly to $5.64^{+0.01}_{-0.04}$ Vdc.
3) Check that the battery pre-end indication (* 1) is shown on the LCD.
   When the battery pre-end indicaition is not shown with 5.64Vdc, check with 5.56±0.01Vdc. And when the battery pre-end indication is shown, it is normal.
4) Lower the supply voltage slowly to 5.48±0.1Vdc.
5) Check that the VTR is shut off and the battery end indication (* 2) is shown on the LCD.

9-4. ADJUSTMENT OF SERVO SYSTEM

9-4-1. PWM Oscillation Frequency Adjustment (SS-96P Board)

Mode	Playback
Signal	Arbitrary tape
Measurement point	Q207 collector
Measuring instrument	Frequency counter
Adjustment element	RV201
Specified value	480±2kHz

[Adjustment Method]

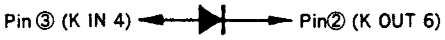
1) Adjust to 480±2kHz with RV201.

9-4-2. Switching Position Adjustment (SS-96P Board)

Mode	Playback
Signal	Alignment tape for tracking adjustment (WR5-1CP)
Measurement point	CH1 : MR-20 board CN802 pin ③ (RF CH2) CH2 : MR-20 board CN802 pin ② (RF SWP)
Measuring instrument	Oscilloscope
Adjustment element	RV002
Specified value	0±5μsec

[Connection]

1) **Connect CN096 of the FC-26P board with a diode** (1SS119 or its equivalent). (test mode 1)



[Adjustment method]

1) Adjust RV002 to coinside a marker of RF CH2 waveform with a fall of RF SWP waveform.

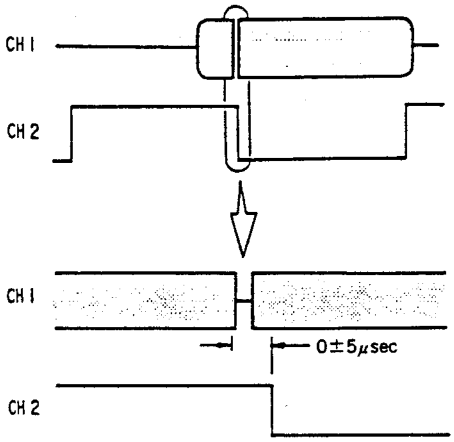


Fig. 9-6.

9-5. ADJUSTMENT OF VIDEO SYSTEM

When adjusting the video system, follow the adjustment sequence below as a rule..Color video signals supplied from the pattern generator are used as video input signals for video system adjustment in the recording mode.Check that the signals meet the specifications provided in Fig. 9-3 and "Input Signal Check".

[Adjustment Sequence]

1) Playback frequency characteristic adjustment
2) Flying erase check
3) X'tal oscillator f_0 adjustment
4) Y/C separation adjustment
5) Y series flow filter adjustment
6) SYNC AGC, loop gain adjustment
7) VI-71 boad VIDEO OUT level adjustment
8) PB enphasis adjustment
9) L mode PB Y level adjustment
10) E mode PB Y level adjustment
11) L mode Y FM carrier frequency, deviation adjustment
12) E mode Y FM carrier frequency, deviation adjustment
13) $375f_H$ VCO adjustment
14) Chroma emphasis f_0 adjustment
15) Carrier balance adjustment
16) REC C RF Trap adjustment
17) F_H VCO adjustment
18) GCA Gain adjustment
19) Recording current adjustment
20) VIDEO OUT level adjustment
21) Y OUT level adjustment
22) C OUT level adjustment
23) Character generator f_0 adjustment
24) DDS character position adjustment

9-5-1. Playback Frequency Characteristic Adjustment (MR-20 Board)

(1) CH1, CH2 Adjustment

Description in [ ] is for CH2 adjustment.

Mode	Playback
Signal	Alignment tape for frequency characteristic adjustment (WR5-7CE)
Measurement point	CN802 pin ③ [pin ④] External trigger : CN802 pin ② [RF SWP] Trigger scope : +, [−]
Measuring instrument	Oscilloscope
Adjustment element	RV802 [RV803]
Specified value	When the 4.5MHz signal level is set to 4, the 8.5 MHz signal level is 2±0.2.

[Adjustment Method]

1) Adjust RV802 [RV803] so that the 8.5MHz signal level will be 2±0.2 when the 4.5 MHz signal level is set to 4.

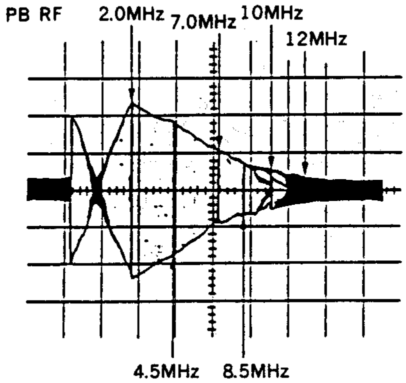


Fig. 9-7.

(2) CH1′ Adjustment

Mode	Playback (test mode 2)
Signal	Alignment tape for frequency characteristic adjustment (WR5-7CE)
Measurement point	CN802 pin ⑤ External trigger : CN802 pin ② [RF SWP] Trigger slope : −
Measuring instrument	Oscilloscope
Adjustment element	RV801
Specified value	The 8.5MHz signal level is 2±0.2 when the 4.5 MHz signal level is set to 4.

[Connection]

1) **Connect the FC-26P board CN096 pins 2 (K OUT 6) and** ① (K IN 5) with a jumper wire.(test mode 2)

[Adjustment Method]

1) Adjust RV801 so that the 8.5 MHz signal level will be 2± 0.2 when the 4.5MHz signal level is set to 4.

9-5-2. Flying Erase Check (MR-20 Board)

Mode	Recording
Signal	Arbitrary
Measurement point	TP804
Measuring instrument	Oscilloscope and frequency counter
Specified value	Frequency : 7.5MHz or more, Voltage : 7.0Vp-p or more

[Check Method]

1) Set an MP type cassette tape and select the recording mode.
2) Check that an oscillation frequency is 7.5MHz or more and an oscillation voltage is 7.0Vp-p or more, respectively.

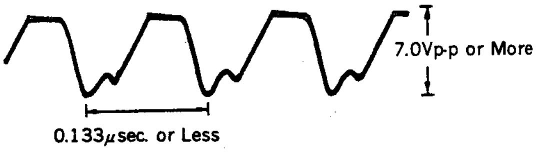


Fig. 9-8.

9-5-3. X'tal Oscillator f_0 adjustment (VI-72 Board)

Mode	Playback
Signal	Alignment tape for operation checking
Measurement point	IC602 pin ⑭
Measuring instrument	Frequency counter
Adjustment element	CV601
Specified value	4433619±50Hz

Note : Connect the frequency counter through a high-impedance (10MΩ or so), low-capacity (10 PF or less) buffer.

[Adjustment Method]

1) Adjust to 4433619±50Hz with CV601.

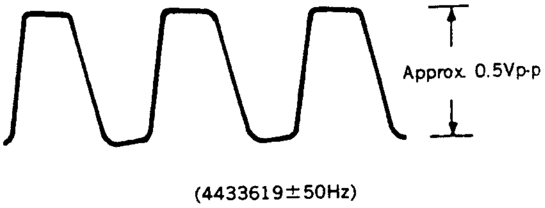


Fig. 9-9.

9-5-4. Y/C Separation Adjustment (HD-8P/VI-72 Board)

Mode	E-E or REC
Signal	Color bar (Composite Video)
Measurement point	HD-8P board pin ㉖
Measuring instrument	Oscilloscope
Adjustment element	HD-8P board RV202 VI-72 board LV601
Specified value	Minimum redisual chroma components

[Adjustment Method]

1) Adjust RV202 of the HD-8P board and LV601 of the VI-72 board alternately to minimize redisual chroma components.

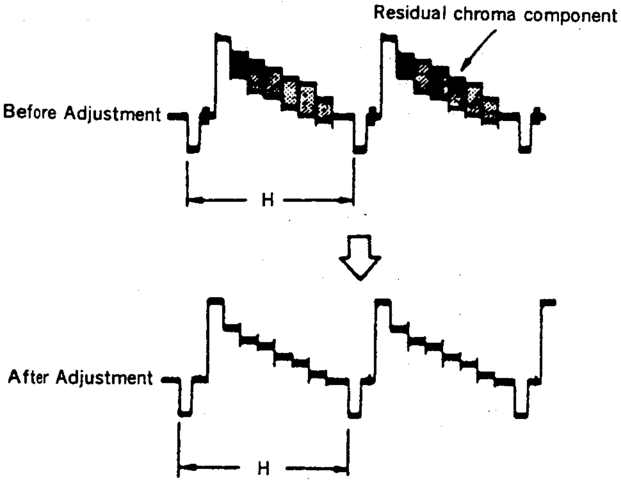

Residual chroma component
Before Adjustment
H
After Adjustment
H

Fig. 9-10.

9-5-5. Y Comb Filter Adjustment (HD-8P/VI-72 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	HD-8P board pin ⑨
Measuring instrument	Oscilloscope
Adjustment element	HD-8P board RV201
Specified value	Minimum amplitude between white (100%) and sync. tip

[Connection]

1) Connect a 22kΩ resistor in series between the HD-8P board pin ⑨ and probe of 10 : 1.

[Adjustment Method]

1) Adjust RV201 to minimize an amplitude between the white (100%) and sync. tip.

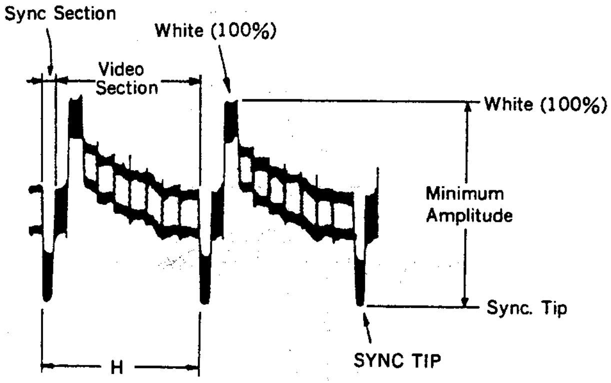

Sync Section
White (100%)
Video Section
White (100%)
Minimum Amplitude
Sync. Tip
SYNC TIP
H

Fig. 9-11.

9-5-6. SYNC AGC, Loop Gain Adjustment

(1) SYNC AGC Adjustment (VI-71 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	IC410 pin ㊲
Measuring instrument	Oscilloscope
Adjustment element	RV409
Specified value	0.50±0.01Vp-p

[Adjustment Method]

1) Adjust to 0.50±0.01Vp-p with RV409.

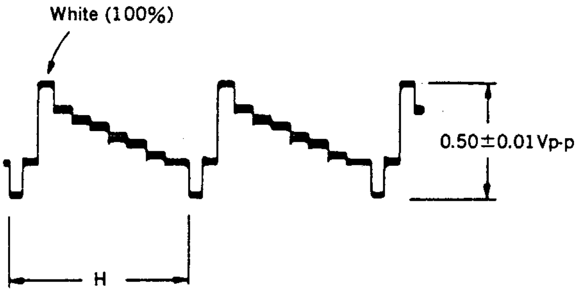


Fig. 9-12.

(2) Loop Gain Adjustment (VI-71 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	IC410 pin ㊴
Measuring instrument	Oscilloscope
Adjustment element	RV401
Specified value	0.50±0.02Vp-p

[Adjustment Method]

1) Adjust to 0.50±0.02Vp-p with RV401.

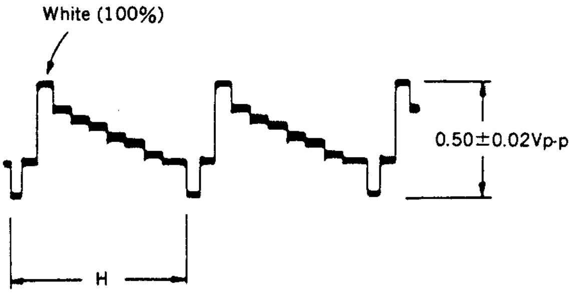


Fig. 9-13.

9-5-7. VIDEO OUT Level Adjustment (VI-71 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV410
Specified value	1.00±0.025Vp-p

[Adjustment Method]

1) Adjust to 1.00±0.025Vp-p with RV410.

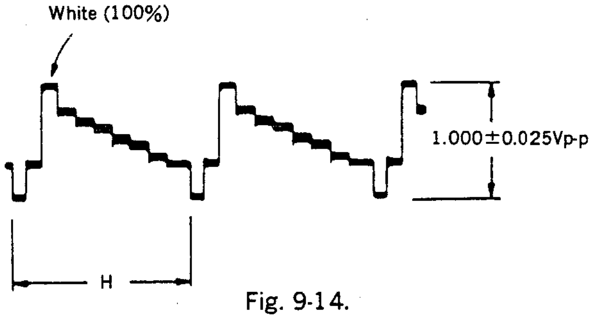


Fig. 9-14.

9-5-8. PB Emphasis Adjustment (VI-71 Board)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-5CSP or WR5-3CSP) Color bar portion
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV408
Specified value	The pedestal level, sync. tip level and each luminance level should be flat.

Note: The EDIT switch (FK-11P board S086) must be turned off.

[Adjustment Method]

1) Flaten the pedestal level, sync. tip level and each luminance level with RV408.

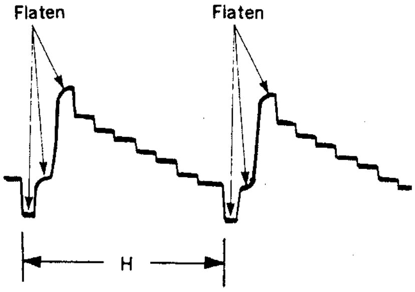


Fig. 9-15.

9-5-9. L Mode PB Y Level Adjustment (VI-71 Board)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-5CSP or WR5-3CSP) Color bar portion
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV416
Specified value	1.02±0.025Vp-p

Note: The EDIT swiitch (FK-11P board S086) must be turned off.

[Adjustment Method]

1) Adjust to 1.02±0.025Vp-p with RV416.
2) Make E mode PB Y level adjustment as described in 9-5-10.

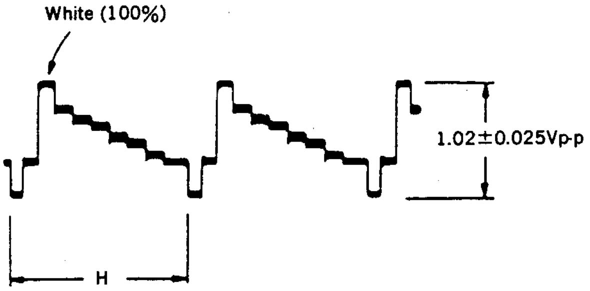


Fig. 9-16.

9-5-10. E Mode PB Y Level Adjustment (VI-71 Board)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-8CSE) Color bar portion
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV417
Specified value	1.02±0.025Vp-p

Note 1: The EDIT switch (FK-11P board S086) must be turned off.

Note 2 : Make this adjustment after completing L mode PB Y level adjustment mentioned in 9-5-9.

[Adjustment Method]

1) Adjust 1.02±0.025Vp-p with RV417.

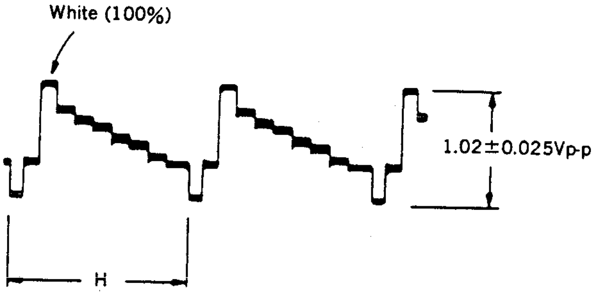


Fig. 9-17.

9-5-11. L Mode Y FM Carrier Frequency, Y FM Deviation Adjustment

Note : After completing this adjustment, be sure to make E mode Y FM carrier frequency, Y FM deviation adjustment as described in 9-5-12.

(1) L Mode Y FM Carrier Frequency Adjustment (VI-71 Board)

Mode	E-E
Signal	No signal
Measurement point	IC409 pin ⑭ (REC Y RF)
Measuring instrument	Frequency counter
Adjustment element	RV406
Specified value	4.38±0.05MHz

[Adjustment Method]

1) Set an MP type cassette tape.
2) Adjust to 4.38±0.05MHz with RV406.
3) Make L mode Y FM deviation adjustment described in (2) below.

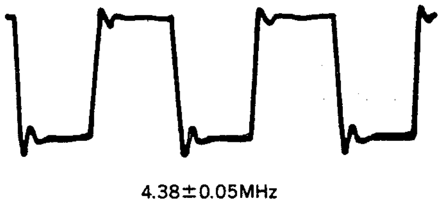


Fig. 9-18.

(2) L Mode Y FM Deviation Adjustment (VI-71 Board)

Mode	Recording and playback
Signal	Color bar (S VIDEO)
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV405
Specified value	Playback level of 1.00±0.05Vp-p

Note 1 :VIDEO OUT level adjustment, PB Y level adjustment and L mode Y FM carrier frequency adjustment must have been completed.

Note 2:The EDIT switch (FK-11p board S086) must be turned off.

[Adjustment Method]

1) Set an MP type cassette tape.
2) Record the color bar signal.
3) Playback the recorded signal.
4) Check the playback output level.
   Specified value : 1.00±0.05Vp-p.
5) When the specified value is not met, turn RV405 as follows and repeat the steps 1) through 3) above.

	RV405 Rotating Direction
when larger than specified value	Counterclockwise direction (↶)
When smaller than specified value	Clockwise direction (↷)

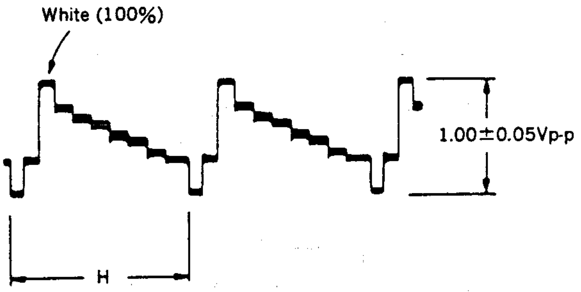


Fig. 9-19.

9-5-12. E Mode Y FM Carrier Frequency, Y FM Deviation Adjustment

Note 1 : Make this adjustment after completing "9-5-11 L Mode Y FM Carrier Frequency, Y FM Deviation Adjustment".

Note 2 : Make adjustment after checking the following 2 points :

1. The hi 8 switch (E/L mode selector switch : PJ-21P board S902) must be shifted to the AUTO side.
2. **A connector must be inserted into the S Video in terminal (PJ-21P board J901 (No mount)) (at no-signal time as well).**

(1) E Mode Y FM Carrier Frequency Adjustment (VI-71 Board)

Mode	E-E
Signal	No signal
Measurement point	IC409 pin ⑭ (REC Y RF)
Measuring instrument	Frequency counter
Adjustment element	RV407
Specified value	5.99±0.05MHz

[Adjustment method]

1) Set an ME type cassette tape.
2) Adjust to 5.99±0.05MHz with RV407.
3) Make E mode Y FM deviation adjustment as described in (2) below.

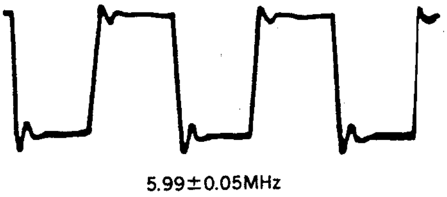


Fig. 9-20.

(2) E Mode Y FM Deviation Adjustment (VI-71 Board)

Mode	Recording and playback
Signal	Color bar (S VIDEO)
Measurement point	CN403 pin ② (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV404
Specified value	Playback level of 1.00±0.05Vp-p

Note 1 :VIDEO OUT level adjustment, PB Y level adjustment and E mode Y FM carrier frequency adjustment must have been completed.

Note 2: The EDIT switch (FK-11P board S086) must be turned off.

[Adjustment Method]

1) Set an ME type cassette tape.
2) Record the color bar signal.
3) Playback the recorded signal.
4) Check the playback output level.
   Specified value : 1.00±0.05Vp-p
5) When the specified value is not met, turn RV404 as follows and repeat the steps 1) through 3) above.

	RV404 Rotating Direction
When larger than specified value	Counterclockwise direction (↶)
When smaller than specified value	Clockwise direction (↷)

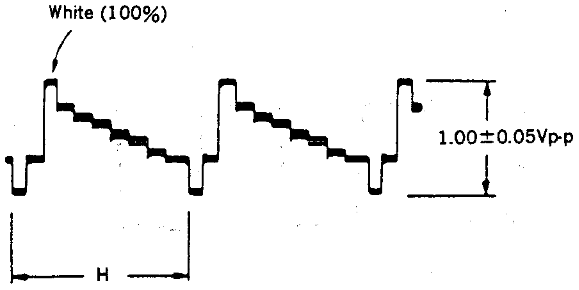


Fig. 9-21.

9-5-13. $375f_H$ VCO Adjustment (VI-72 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC602 pin ㉖
Measuring instrument	Digital voltmeter
Adjustment element	RV602
Specified value	3.0±0.4Vdc

[Adjustment Method]

1) Adjust to 3.0±0.4Vdc with RV602.

9-5-14. Chroma Emphasis Adjustment (VI-72 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	IC602 pin ㊹
Measuring instrument	Oscilloscope
Adjustment element	FL603
Specified value	Be sure to confirm that the f_0 component is minimum and zero cross appears between green and magenta.

[Connection]

1) Enter 2.5 Vdc to the IC602 pin ㊼ (ACC ADJ) through the following connection.

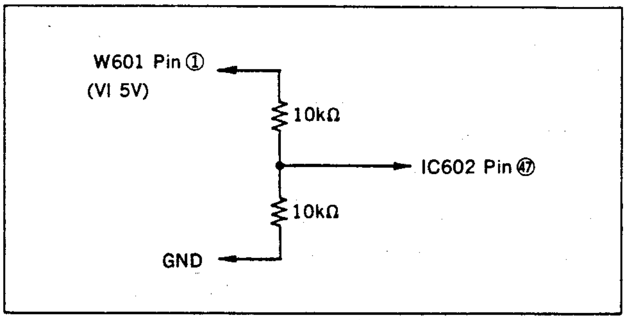


Fig. 9-22.

[Adjustment Method]

1) Adjust with FL603 so that the amplitude of the flat cyan section of the chroma signal becomes minimum.
   At this point, be sure to confirm that the zero cross appears between the green and magenta.

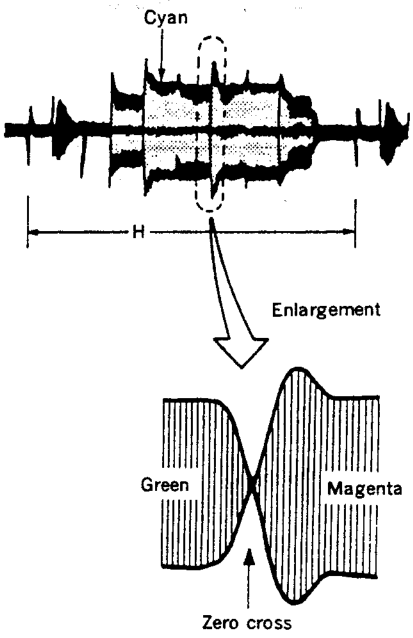


Fig. 9-23.

9-5-15. Carrier Balance Adjustment (VI-72 Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	IC602 pin ㊵
Measuring instrument	Oscilloscope
Adjustment element	RV601
Specified value	5.17MHz components minimum

[Adjustment Method]

1) Minimize 5.17MHz components with RV601.

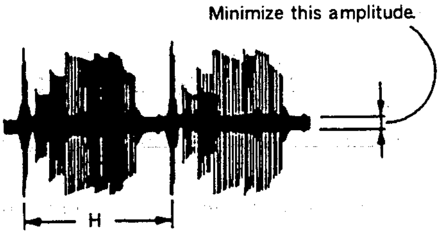


Fig. 9-24.

9-5-16. REC C RF Trap Adjustment (VI-72 Board)

Mode	E-E
Signal	Monoscope
Measurement point	Q601 (emiter) (REC C RF)
Measuring instrument	Oscilloscope
Adjustment element	CV602
Specified value	Minimize Ⓐ (Less than 50mVp-p)

[Adjustment Method]

1) Adjust to minimize Ⓐ with CV602.

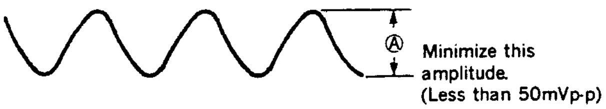


Fig. 9-25.

9-5-17. F_H VCO Adjustment (VI-72 Board)

Mode	E-E
Signal	Color bar (VIDEO)
Measurement point	IC603 pin ⑮
Measuring instrument	Frequency counter
Adjustment element	RV604
Specified value	15,625±20Hz

[Connection]

1) Connect the IC603 pins ⑫ and ⑥ (GND) with a jumper wire.

[Adjustment Method]

1) Adjust to 15,625±20Hz with RV604.

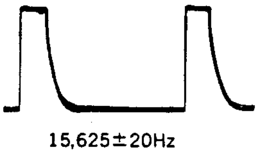


Fig. 9-26.

9-5-18. GCA Gain Adjustment (VI-72 Board)

Mode	Playback and STILL, CUE, REVIEW
Signal	Alignment tape for operation checking (WR5-5CSP or WR5-3CSP) Color bar portion
Measurement point	IC603 pin ⑤
Measuring instrument	Oscilloscope
Adjustment element	RV603
Specified value	b=(a−20)±15mVp-p

[Adjustment Method]

1) Playback, and measure the burst level. (this level is ⓐ)
2) Set to the STILL, CUE and REVIEW mode, and measure the burst level once more. (this level is ⓑ)
3) With RV604, adjust the burst level of the STILL, CUE and REVIEW mode to ⓑ=(ⓐ−20)±15mVp-p.

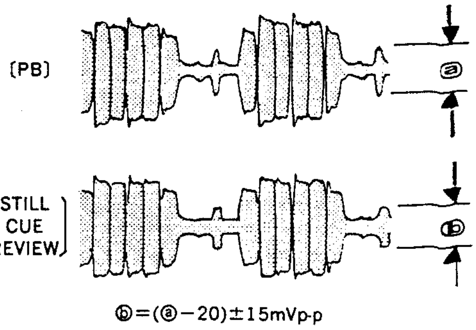


Fig. 9-27.

9-5-19. Recording Current Adjustment

Make this adjustment in the E mode, using the ME tape. Before adjustment, check the following 2 points :

1) The hi 8 switch (E/L mode selector switch: PJ-21P board S902) must be shifted to the AUTO side (E mode side).
2) **A connector must be inserted into the S Video in terminal (PJ-21P board J901 (No mount)) (at no-signal time as well).**
   Also, remove CN002 of thhe TC-11P board in order to prevent the index system from being affected.

(1) REC Y Recording Current Adjustment (MR-20 Board)

Mode	Recording
Signal	No signal
Measurement point	TP802 (HR-3P board pin ⑳: CH1 CHECK)
Measuring instrument	Oscilloscope
Adjustment element	RV806
Specified value	180±10mVp-p

Note 1 : After REC Y recording current adjustment, be sure to wake REC C, REC AFM and REC ATF recording current adjustments.

[Adjustment Method]

1) Set an ME type cassette tape and select the recording mode.
2) Adjust to 180±10mVp-p with RV806.

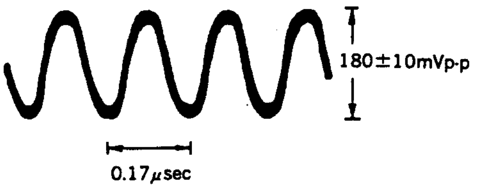


Fig. 9-28.

(2) REC C Recording Current Adjustment (MR-20 Board)

Mode	Recording
Signal	Color bar (S VIDEO)
Measurement point	TP802 (HR-3P board pin ⑳: CH1 CHECK)
Measuring instrument	Oscilloscope
Adjustment element	RV805
Specified value	45±3mVp-p

Note 1 : After REC C recording current adjustment, be sure to make REC AFM and REC ATF recording current adjustments.

[Connection]

1) Connect the following 3 sections with jumper wires.
   1. MR-20 board CN804 pin ⑨ (REC VI RF) to pin ⑧ (REG 5V)
   2. **AT-8P board CN310 pin 20 (REC ATF) to pin 14 (SS 5V)**
   3. **AT-8P board CN310 pin 10 (REC AFM) to pin 5 (AUDIO 5V)**

[Adjustment Method]

1) Set an ME type cassette tape and select the recording mode.
2) Adjust to 45±3mVp-p with RV805.

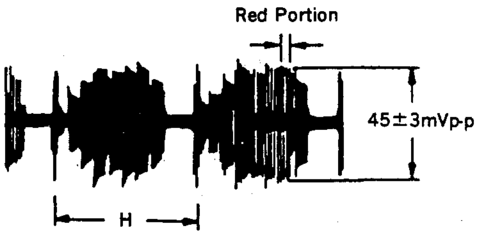


Fig. 9-29.

(3) REC AFM Recording Current Adjustment (AT-8P Board)

Mode	Recording
Signal	No signal
Measurement point	MR-20 board TP802 (HR-3P board pin ⑳ : CH1 CHECK)
Measuring instrument	Oscilloscope
Adjustment element	RV350
Specified value	15±1.5mVp-p

Note 1 : When the TP802 signal level is too low to read, connect directly through a 100Ω resistor as shown in the figure below instead of using a probe of 10 : 1.

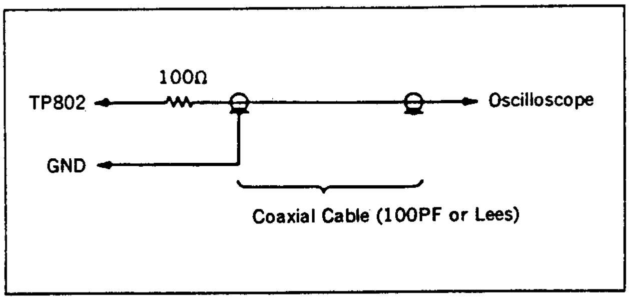

100Ω
TP802
Oscilloscope
GND
Coaxial Cable (100PF or Lees)

Fig. 9-30.

[Connection]

1) Connect the following 2 sections with jumper wires :
   1. MR-20 board CN804 pin ⑨ (REC VI RF) to pin ⑧ (REG 5V)
   2. AT-8P board CN310 pin 20 (REC ATF) to pin 14 (SS 5V)

[Adjustment Method]

1) Set an ME type cassette tape and select the recording mode.
2) Adjust to 15±1.5mVp-p with RV350.

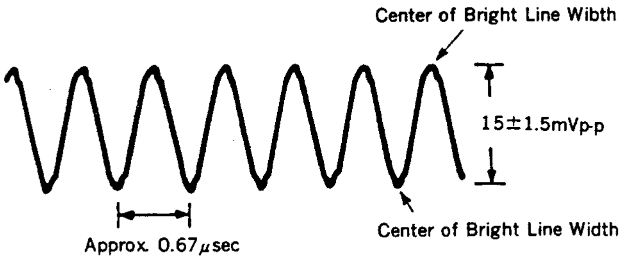

Center of Bright Line Wibth
15±1.5mVp-p
Approx. 0.67μsec
Center of Bright Line Width

Fig. 9-31.

(4) REC ATF Recording Current Adjustment (AT-8P Board)

Mode	Recording
Signal	No signal
Measurement point	MR-20 board TP802 (HR-3P board pin ⑳ : CH1 CHECK)
Measuring instrument	Oscilloscope
Adjustment element	RV310
Specified value	12±1.5mVp-p

Note 1 : When the TP802 signal level is too low to read, connect directly through a 100Ω resistor as shown in the figure below without using a probe of 10 : 1.

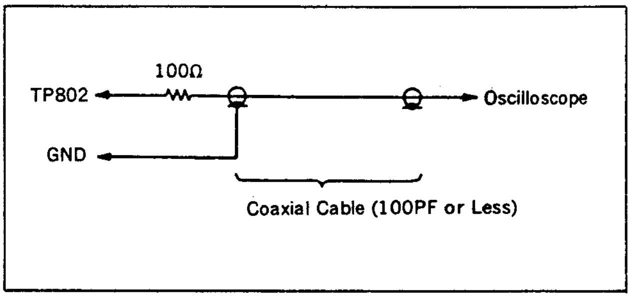

100Ω
TP802
Oscilloscope
GND
Coaxial Cable (100PF or Less)

Fig. 9-32.

[Connection]

1) Connect the following 2 sections with jumper wires.
   1. MR-20 board CN804 pin ⑨ (REC VI RF) to pin ⑧ (REG 5V)
   2. AT-8P board CN310 pin 10 (REC AFM) to pin 5 (AUDIO 5V)

[Adjustment Method]

1) Set an ME type cassette tape and select the recording mode.
2) Adjust to 12±1.5mVp-p with RV310.

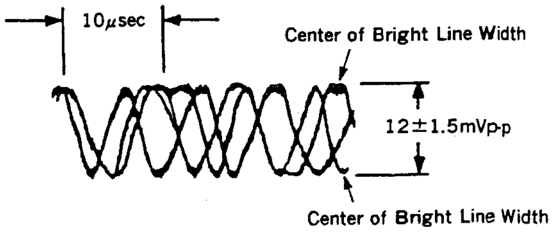

10μsec
Center of Bright Line Width
12±1.5mVp-p
Center of Bright Line Width

Fig. 9-33.

9-5-20. VIDEO OUT Level Adjustment (FD-14P Board)

Mode	E-E
Signal	Color bar (Composite video)
Measurement point	PJ-21P board J904 (VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV901
Specified value	1.00±0.025Vp-p

Note 1 : The PJ-21P board J904 (VIDEO OUT) must be terminated at 75Ω.

[Adjustment Method]

1) Adjust to 1.00±0.025Vp-p with RV901.

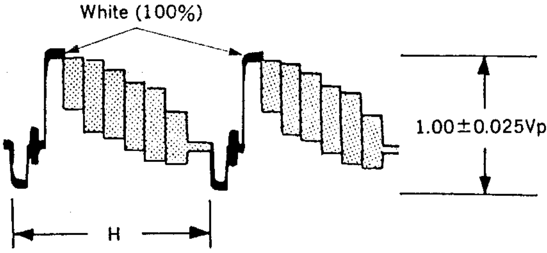


Fig. 9-34.

9-5-21. Y OUT Level Adjustment (FD-14P Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	PJ-21P board J903 (S VIDEO OUT) Y signal terminal
Measuring instrument	Oscilloscope
Adjustment element	RV902
Specified value	1.00±0.025Vp-p

[Connection]

1) Terminate the signal terminal for the PJ-21P board J903 (S VIDEO OUT) at 75Ω.
2) **Connect the FD-14P board W902 pin 8 (S POWER SAVE) and GND with a jumper wire.**

[Adjustment Method] .

1) Adjust to 1.00±0.025Vp-p with RV902.

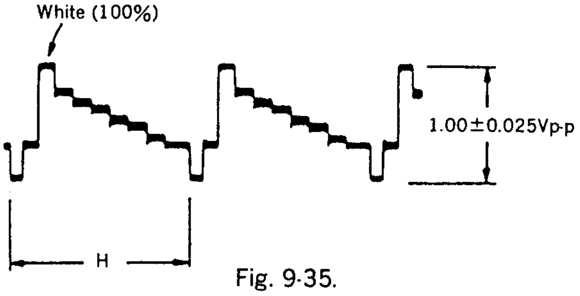


Fig. 9-35.

9-5-22. C OUT Level Adjustment (FD-14P Board)

Mode	E-E
Signal	Color bar (S VIDEO)
Measurement point	Chroma signal terminal (C OUT) of the PJ-21P board J903 (S VIDEO OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV903
Specified value	0.300±0.007Vp-p

[Connection]

1) Terminate the chroma signal terminal of the PJ-21P board J903 (S VIDEO OUT) at 75Ω.
2) **Connect the FD-14P board W902 pin 8 (S POWER SAVE) and GND with a jumper wire.**

[Adjustment Method]

1) Adjust the burst level to 0.300±0.007Vp-p with RV903.

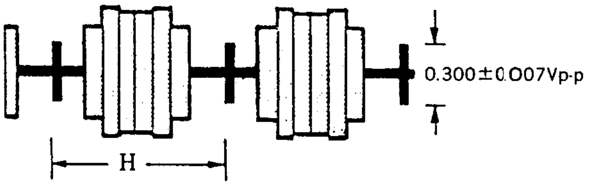


Fig. 9-36.

9-5-23. Character Generator f_0 Adjustment (VI-71 Board)

Mode	E-E
Signal	No signal
Measurement point	IC407 pin ⑲
Measuring instrument	Frequency counter
Adjustment element	CV401
Specified value	15675±50Hz

[Adjustment Method]

1) Adjust to 15675±50Hz with CV401.

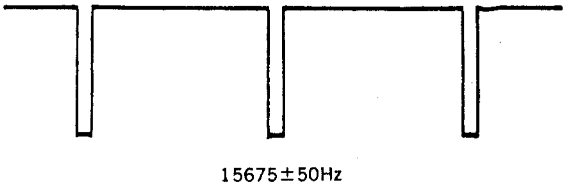


Fig. 9-37.

9-5-24. DDS Character Position Adjustment (VI-71 Board)

Mode	Playback (data screen ON)
Signal	Alignment tape for operation checking, Color bar portion
Measurement point	Monitor TV screen
Measuring instrument	Monior TV
Adjustment element	CV402
Specified value	Adjust the red-blue change position as shown in the figure.

[Adjustment Method]

1) **Turn on the data screen with the DATA SCREEN button (FK-11P board S080)**
2) With CV402, Adjust the red-blue change position as shown in the figure.

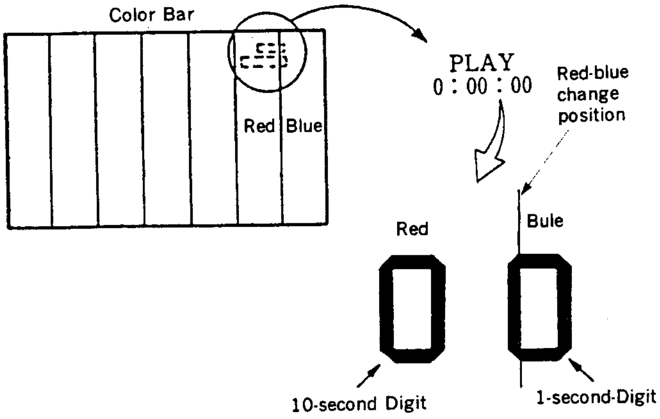

Color Bar
Red
Blue
PLAY
0 : 00 : 00
Red-blue change position
Red
Bule
10-second Digit
1-second-Digit

Fig. 9-38.

9-6. ADJUSTMENT OF INDEX SYSTEM

9-6-1. PB VCO Free Oscillation Frequency Adjustment (TC-11P Board)

Mode	Playback
Signal	Arbitrary tape
Measurement point	TP001 (open-side terminal of R008)
Measuring instrument	Frequency counter
Adjustment element	RV003
Specified value	11.50±0.05MHz

[Connection]

1) Connect the IC002 pin① (DUTY) and IC002 pin⑥ (DVCC) with a jumper wire.
2) Remove CN002.

[Adjustment Method]

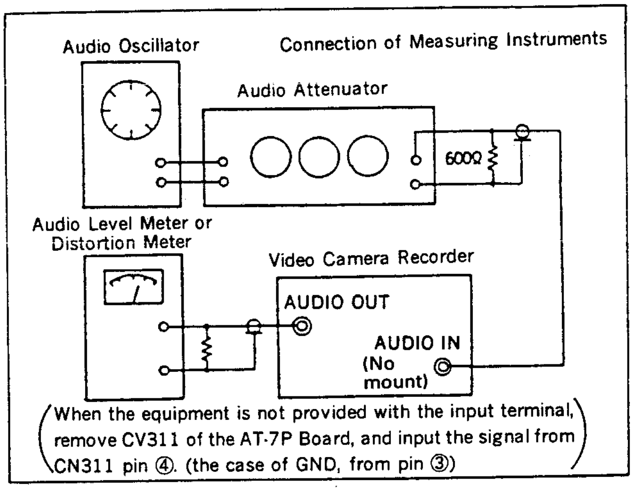
1) **Press the INDEX button (FD-14P board S071).**
2) **Adjust to 11.58_0.05 MHz with RV003.**

9-7. ADJUSTMENT OF AUDIO SYSTEM

Enter the color bar signal to the Video in terminal (No mount) to make adjustment. (Refer to Fig. 9.1.)

Specified values audio system adjustment are common for each recording mode (L or E mode) and each tape type (MP. ME, MPHG).

Note : When the equipment is not provided with the input terminal, follow the indication described in 〈 〉, and adjust the Mode and Signal.


Audio Oscillator
Connection of Measuring Instruments
Audio Attenuator
600Ω
Audio Level Meter or Distortion Meter
Video Camera Recorder
AUDIO OUT
AUDIO IN (No mount)

(When the equipment is not provided with the input terminal, remove CV311 of the AT-7P Board, and input the signal from CN311 pin ④. (the case of GND, from pin ③))

Fig. 9-39.

9-7-1. AFM Carrier Frequency Check (AT-8P Board)

Mode	Recording <Camera recording>
Signal	No signal Connect a shorting plug to the AUDIO IN terminal. <Connect the CN310 pin ③ and pin ④ with a jumper wire.>
Measurement point	CN310 pin ⑩ (REC AFM)
Measuring instrument	Frequency counter
Specified value	1.50±0.01MHz

[Check Method]

1) Short CN310 pin ④ with GND.
2) Check that the specified value of 1.50±0.01MHz is met.

9-7-2. Playback Level Check (AT-8P Board)

Mode	Playback
Signal	Alignment tape for operation checking
Measurement point	AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−7.5±2dBs

[Check Method]

1) Check that the specified value of −7.5±2dBs is met.

9-7-3. E-E Output Level Check (AT-8P Board)

Mode	Recording <Camera recording>
Signal	400Hz, −7.5dBs <400Hz, −35dBs>
Measurement point	AUDIO OUT terminal
Measuming instrument	Audio level meter
Specified value	−7.5±2dBs

[Check Method]

1) Check that the audio output level is −7.5±2dBs.

9-7-4. Overall Level Characteristic Check

Mode	Self recording and playback <Camera recording and playback>
Signal	400Hz, −7.5dBs <400Hz, −35dBs>
Measurement point	AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−7.5±3dBs

[Check Method]

1) Record a signal.
2) Playback the recorded portion.
3) Check that the audio output level is−7.5±3dBs.

9-7-5. Overall Distortion Factor Check

Mode	Self recording and playback <Camera recording and playback>
Signal	400Hz, −7.5dBs <400Hz, −35dBs>
Measurement point	AUDIO OUT terminal
Measuring instrument	Distortiom meter
Specified value	0.5% or less *1

[Check Method]

1) Record a signal.
2) Playback the recorded portion.
3) A distortion factor must be 0.5% or less *1

*1 This is a value when a distortion factor measuring filter (Fig. 9-40) is used. It is 1.0% or less when the filter not used.

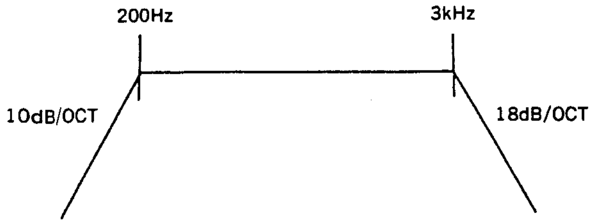


Fig. 9-40.

9-7-6. Overall Noise Level Check

Mode	Self recording and playback <Camera recording and playback>
Signal	No signal Connect a shorting plug to the AUDIO IN terminal. <Connect the CN310 pin ③ and pin ④ with a jumper wire.>
Measurement point	AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−67.5dBs or less

[Check Method]

1) Record a signal.
2) Playback the recorded portion.
3) The noise level must be −67.5dBs or less.

9-8. ADJUSTMENT OF ELECTRONIC VIEWFINDER

9-8-1. Horizontal Slant Adjustment

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP) Monoscope portion
Specified value	The picture should be within ±1° of the horizon.

[Adjustment Method]

1) Playback the monoscope portions of the alignment tape.
2) Rotate the deflection coil while moving it closer to the fluorescent screen and fix the deflection coil so that pictures become horizontal.
(Do not strap too strongly.)

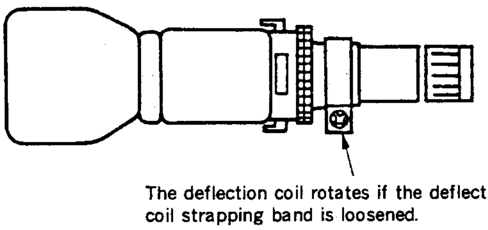
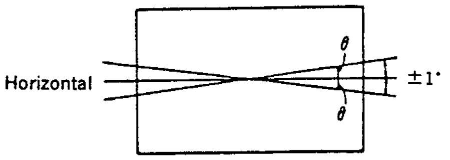

The deflection coil rotates if the deflection coil strapping band is loosened.

Fig. 9-41.


Horizontal
θ
θ
±1°

Adjustment Value: The picture should be within ±1° of the horizon.

Fig. 9-42.

9-8-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP) Monoscope portion
Specified value	**Refer to Fig. 9-44.**

[Adjustment Method]

1) Playback monoscope portions of the alignment tape.
2) Move the centering magnet to adjust to obtain pictures that are uniform horizontally and vertically.

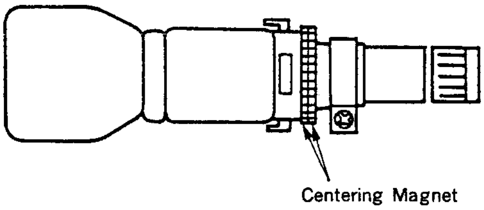

Centering Magnet

Fig. 9-43.

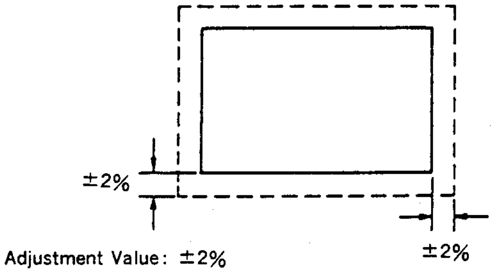

±2%
Adjustment Value: ±2%
±2%

Fig. 9-44.

Note: The centering position changes affected by ground magnetism. Rotate 360° horizontally and adjust by the displacement center portion.

9-8-3. Horizontal Amplitude Adjustment (VF-4 Board)

Mode	Playback
Signal	Alignment tape : For operation checking (WR5-5CSP) Monoscope portion
Adjustment element	C028 (C pattern) C029 (B pattern) C030 (A pattern)
Specified value	8.0±2.5%

[Adjustment Method]

1) Playback the monoscope portions of the alignment tape.
2) Rotate RV003 and align the top and bottom portions of the monoscope picture to the top and bottom edges of the screen.
3) Rotate RV005 to obtain the normal level of brightness.
4) Short or open the patterns (A to C) of the H-size adjusting capacitors (C028 to C030) sequentially to obtain horizontal overscanning of 8 ±2.5% (total of both left and right). **(See Fig. 9-45.)**

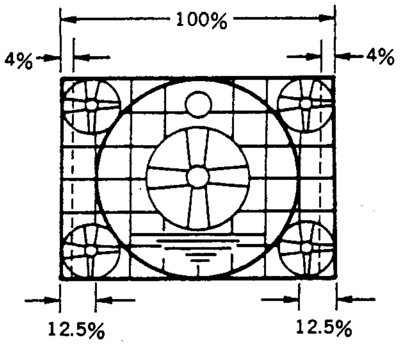


Fig. 9-45.

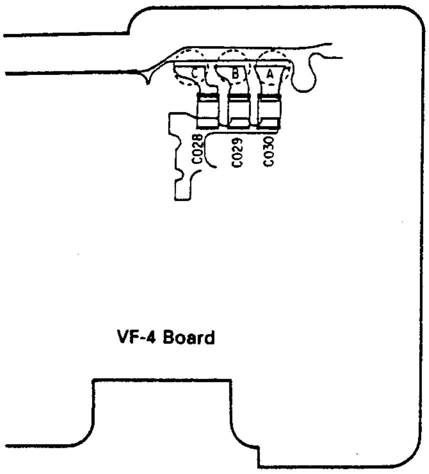


Fig. 9-46.

9-8-4. Vertical Amplitude Adjustment (VF-4 Board)

Mode	Playback
Signal	Alignment tape : For operation checking (WR5-5CSP) Monoscope portion
Adjustment element	RV005
Specified value	5.0±2.5%

[Adjustment Method]

1) Playback the monoscope portions of the alignment tape.
2) Adjust RV003 to obtain veritical overscanning of 5± 2.5% (total of both top and bottom).

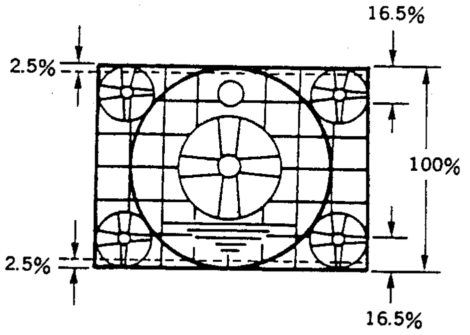


Fig. 9-47.

9-8-5. Horizontal Oscillating Frequency Adjustment (VF-4 Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	Check on monitor-TV
Measuring instrument	
Adjustment element	RV001
Specified value	**Refer to Fig. 9-48.**

[Connection]

1) Connect between Pin ⑨ of IC001 and GND using a jumper wire. Cover a white cap on the camera lens.

[Adjustment Method]

1) Turn on camera power.
2) Adjust RV001 to obtain pictures as shown in Fig. 9-47. (Flow of horizontal blanking portion (black lines) should be less than two lines.)

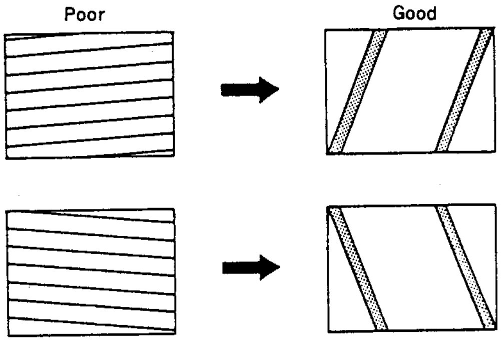


Fig. 9-48.

9-8-6. Vertical Oscillating Frequency Adjustment (VF-4 Board)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-5NSP) Monoscope portion
Measurement point	C015 ⊕ side
Measuring instrument	Frequency counter or Oscilloscope
Adjustment element	RV002
Specified value	50±1Hz. (20.0±0.4msec)

[Connection]

1) Connect between Pin ⑨ of IC001 and GND using a jumper wire.

[Adjustment Method]

1) Connect the frequency counter or oscilloscope to the − side (DV1 terminal) of C015.
2) Adjust the frequency to 50±1Hz (20.0±0.4msec) with RV002.

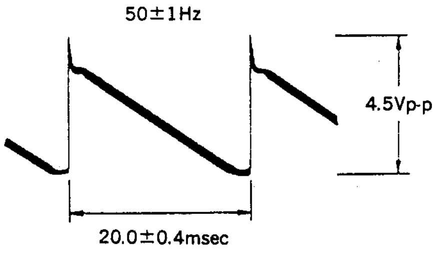


Fig. 9-49.

9-8-7. Brightness and Contrast Adjustment (VF-4 Board)

Mode	Playback
Signal	Alignment tape : For operation checking (WR5-5CSP) Monoscope portion
Adjustment element	Brightness : RV005 Contrast : RV004

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust RV004 and RV005 alternately until light and shade of the gray scale is indicated correctly.
(The light portion should not be so bright that the cross hatch inside the monoscope circle blooms. The shade portion should not be so dark that the darkest and second darkest portions of the gray scale cannot be recognized.)

9-8-8. Focus Adjustment (VF-4 Board)

Mode	Playback
Signal	Alignment tape : For operation checking (WR5-5CSP) Monoscope portion
Adjustment element	RV006

[Adjustment Method]

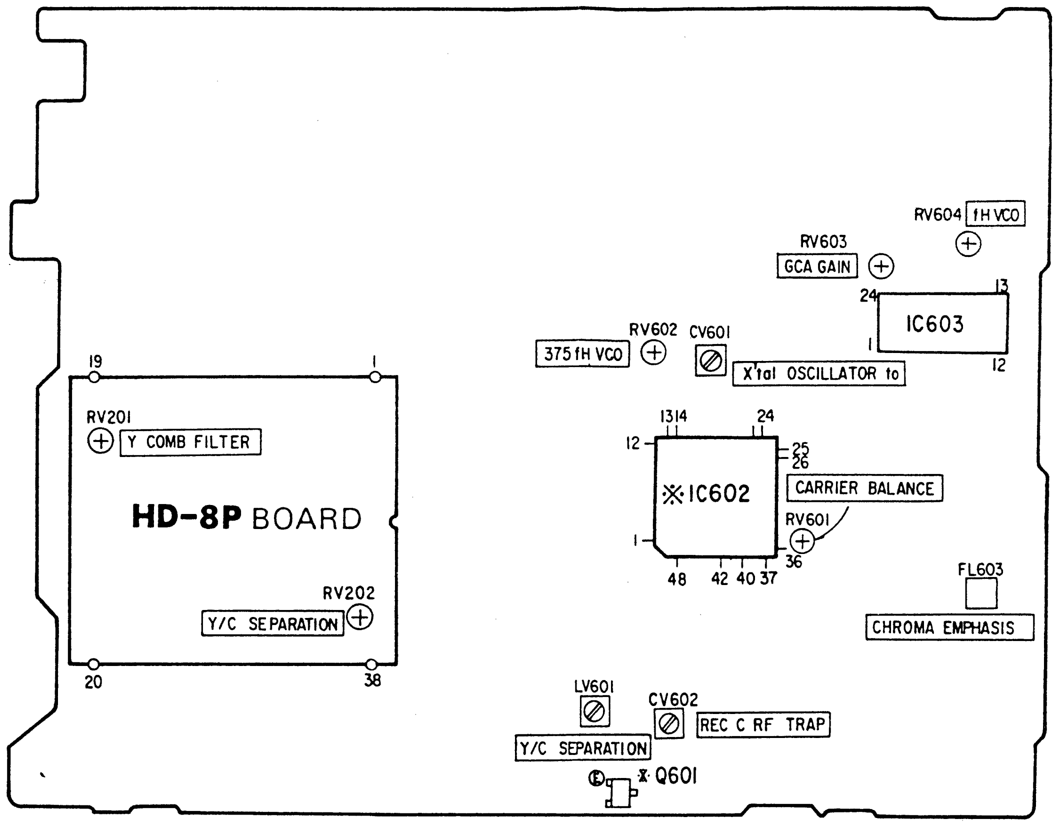
1) Play back the monoscope portions of the alignment tape.
2) Adjust to the best focus point with RV006.

9-8-9. Horizontal and Vertical Amplitude Checking

The parameters given in 9-8-3. Horizontal Amplitude Adjustment and 9-8-4. Vertical Amplitude Adjustment must be within the standard values. If not, readjust. Perform the steps required in 9-8-7. Brightness and Contrast Adjustment and 9-8-8. Focus Adjustment as well when making horizontal and vertical amplitude adjustment.

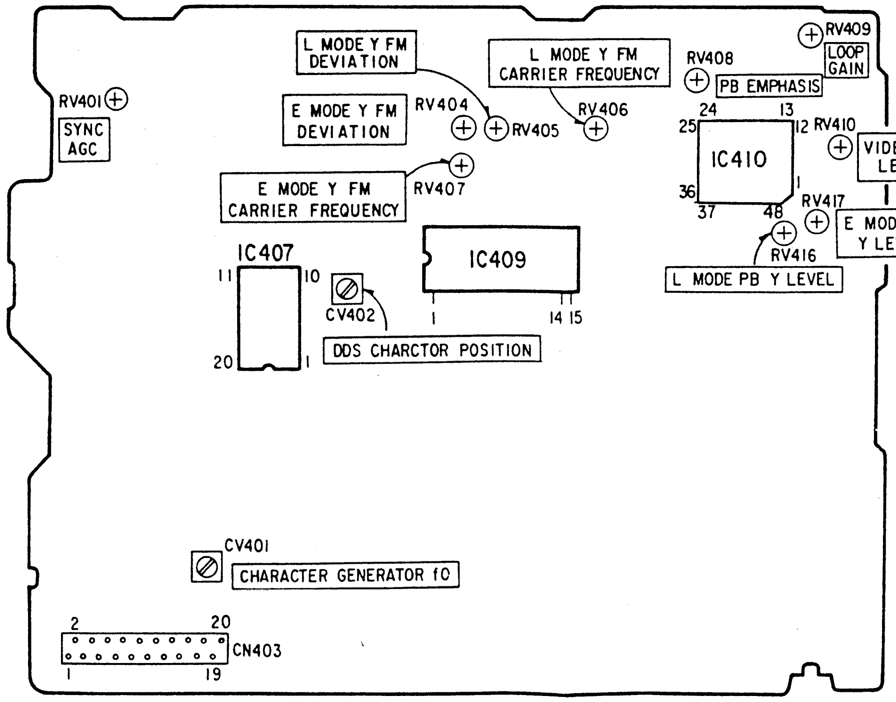
9-9. ADJUSTMENT PART LOCATION DIAGRAM

VI-72 BOARD (COMPONENT SIDE)

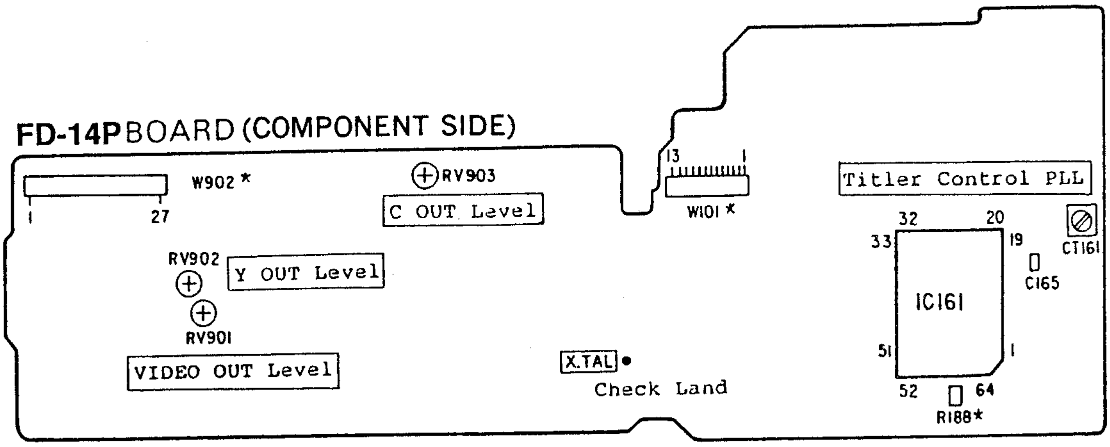

RV604
fH VCO
RV603
GCA GAIN
24
13
IC603
1
12
RV602
CV601
375fH VCO
X'tal OSCILLATOR fo
19
1
RV201
Y COMB FILTER
HD-8P BOARD
RV202
Y/C SEPARATION
20
38
13 14
24
12
25
26
※IC602
CARRIER BALANCE
RV601
1
36
48
42
40
37
FL603
CHROMA EMPHASIS
LV601
CV602
REC C RF TRAP
Y/C SEPARATION
※Q601

※ The parts marked by "※" are located on the conductor side.

VI-71 BOARD (COMPONENT SIDE)

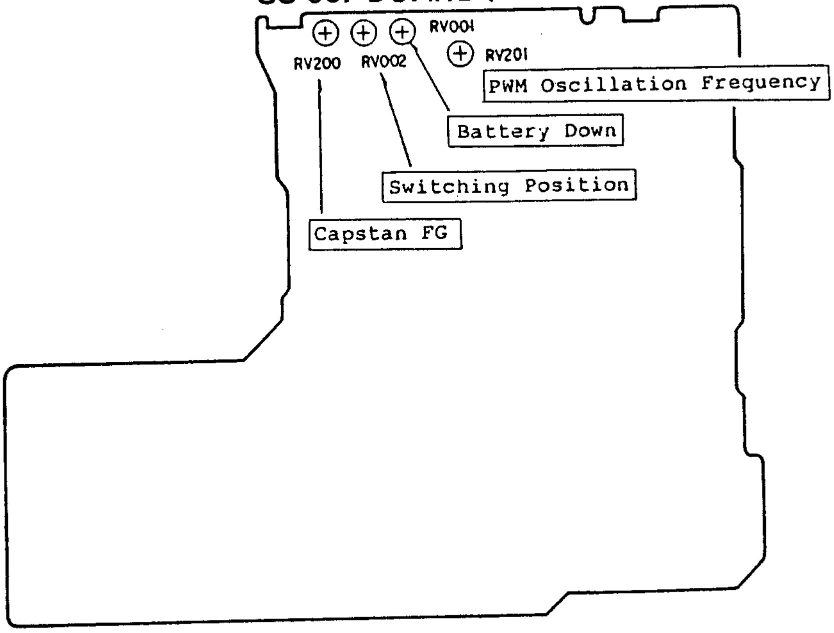

L MODE Y FM DEVIATION
L MODE Y FM CARRIER FREQUENCY
RV409
LOOP GAIN
RV408
PB EMPHASIS
RV401
SYNC AGC
E MODE Y FM DEVIATION
RV404
RV405
RV406
24
13
25
12
RV410
VIDEO OUT LEVEL
IC410
1
36
37
48
E MODE Y FM CARRIER FREQUENCY
RV407
RV417
E MODE PB Y LEVEL
RV416
L MODE PB Y LEVEL
IC407
11
10
20
1
CV402
IC409
1
14
15
DDS CHARCTOR POSITION
CV401
CHARACTER GENERATOR fO
2
20
CN403
1
19

FD-14P BOARD (COMPONENT SIDE)

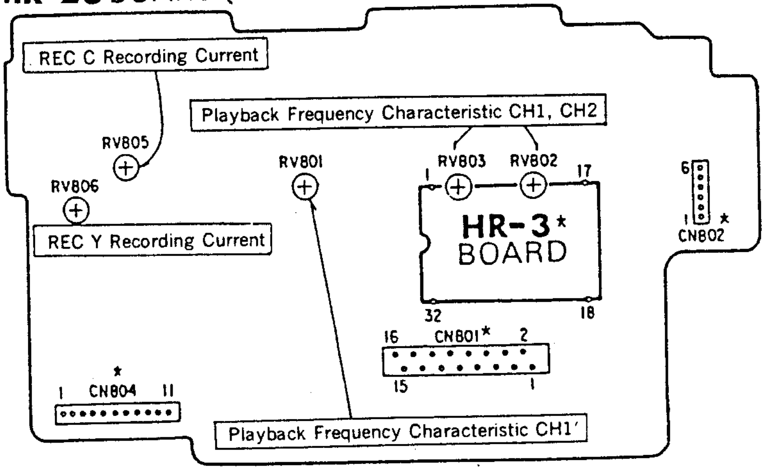

W902 *
1
27
RV903
C OUT Level
RV902
Y OUT Level
RV901
VIDEO OUT Level
13
1
W101 *
X.TAL
Check Land
Titler Control PLL
32
20
33
19
CT161
C165
IC161
51
1
52
64
R188*

The parts marked by "★" are located on the conductor side.

SS-96P BOARD (COMPONENT SIDE)

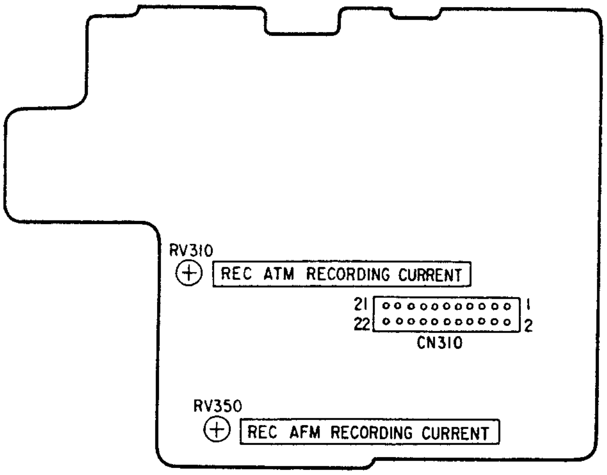

RV001
RV200
RV002
RV201
PWM Oscillation Frequency
Battery Down
Switching Position
Capstan FG

MR-20 BOARD (COMPONENT SIDE)

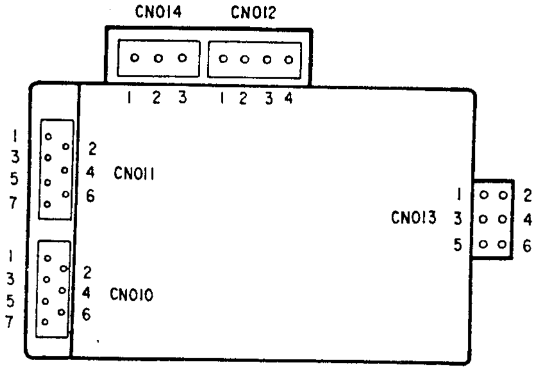

REC C Recording Current
Playback Frequency Characteristic CH1, CH2
RV805
RV806
RV801
RV803
RV802
1
17
REC Y Recording Current
HR-3 *
BOARD
32
18
6
1
★
CN802
16
CN801★
2
15
1
★
1
CN804
11
Playback Frequency Characteristic CH1'

The parts marked by "★" must be located on the component side.

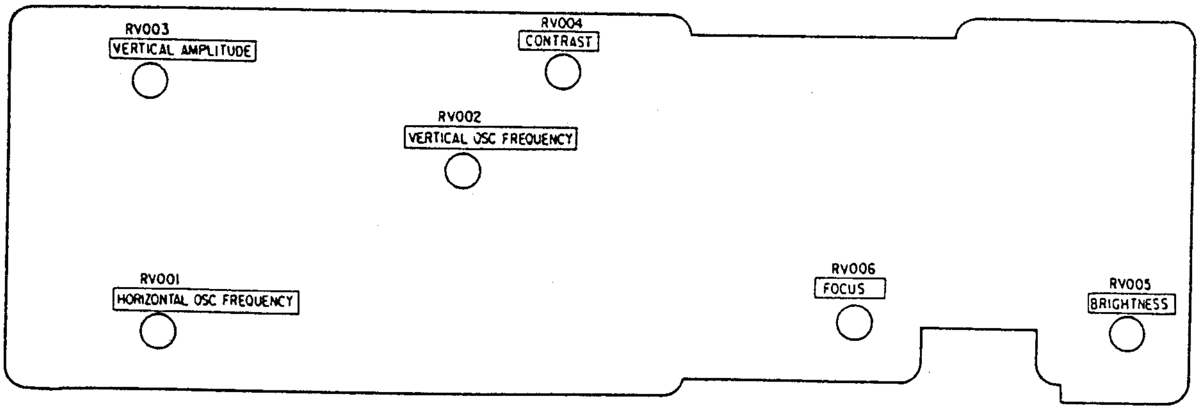
AT-8P BOARD (COMPONENT SIDE)


RV310
REC ATM RECORDING CURRENT
21
22
1
2
CN310
RV350
REC AFM RECORDING CURRENT

DC-DC CONVERTER(COMPONENT SIDE)


CN014
CN012
1 2 3
1 2 3 4
1
3
5
7
2
4
6
CN011
1
3
5
7
2
4
6
CN010
CN013
1
3
5
2
4
6

VF-4 Board (Component side)


RV003
VERTICAL AMPLITUDE
RV004
CONTRAST
RV002
VERTICAL OSC FREQUENCY
RV001
HORIZONTAL OSC FREQUENCY
RV006
FOCUS
RV005
BRIGHTNESS

SECTION 10
SERVICE MODE

10-1. SERVICE MODE

This equipment has the service mode for its adjustment and operation check. The service mode has two types and they can be changed over by the connection between the VC-55P board checkpoint array pin Ⓑ⑥ and GND.

Service Mode	Function	Connection between Checkpoint Array Pin B6 and GND
Status Display mode	For adjustment and operation check of the video block	Open (connection not required)
EVR Adjust mode	For adjustment of the camera block	Short

(For the EVR Adjust mode, refer to Section 8 CAMERA ADJUSTMENTS)

10-1-1. Starting the Service Mode

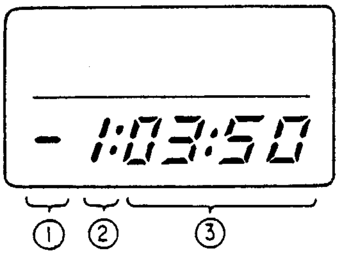
1) Connect the adjustment remote control to the REMOTE terminal (JC-3P board J070) of the main body.
2) Shift the HOLD switch of the adjustment remote control to the HOLD position (SERVICE position).

The Status Display mode is started by taking the steps above.

To set the EVR Adjust mode, connect the checkpoint array pinⒷ⑥and GND with a jumper wire in addition to the above.

10-1-2. Display on Adjustment Remote Control LCD in Status Display Mode

Note : For category 1 through 4, the same content is displayed on the EVF screen and monitor screen (when the data screen is turned on).



①…… A minus (−) segment blinks to indicate that the service mode has been started.
②…… Indicates a service mode category.
③…… Displays a battery voltage, LAST EMG, PRESENT EMG, and MODE SW CODE depending on each category.

Fig. 10-1.

10-1-3. Category Selection and Display for Each Category

Select your desired category with the FF button of the adjustment remote control. There are four categories available ; their display contents differ respectively.

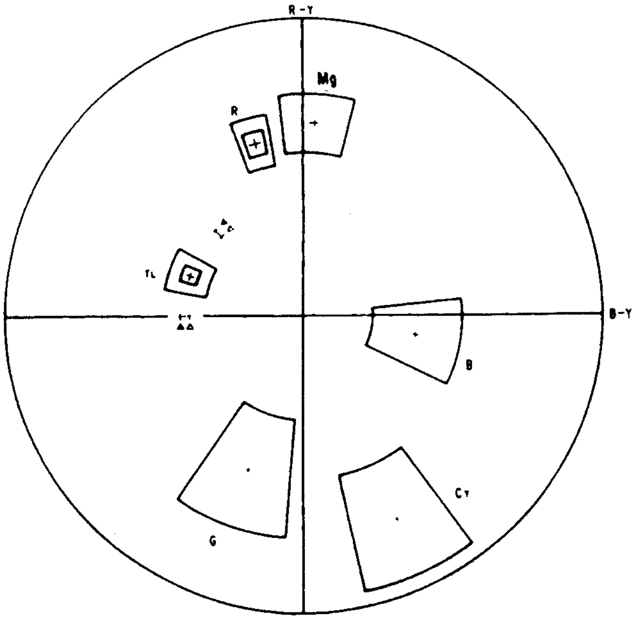
<table>
<tr><th>Category</th><th colspan="2">Display on LCD (Remote Control/Set)</th></tr>
<tr><td>1</td><td colspan="2">A/D converted value of battery voltage (decimal display)(Note 1)</td></tr>
<tr><td>2</td><td colspan="2">LAST EMG (last error). Refer to "Service Mode Error Display". (Note 2)</td></tr>
<tr><td>3</td><td colspan="2">PRESENT EMG (present error). Refer to "Service Mode Error Display". (Note 3)</td></tr>
<tr><td>4</td><td colspan="2">MODE SW CODE (mechanical status)</td></tr>
<tr><td></td><td>00 : 00</td><td>EJECT</td></tr>
<tr><td></td><td>00 : 01</td><td>I.A</td></tr>
<tr><td></td><td>00 : 02</td><td>UNLOAD</td></tr>
<tr><td></td><td>00 : 03</td><td>I.B</td></tr>
<tr><td></td><td>00 : 04</td><td>STOP (threading completed)</td></tr>
<tr><td></td><td>00 : 05</td><td>I.C</td></tr>
<tr><td></td><td>00 : 06</td><td>RP(REC, PB, FF, REW, CUE, REVIEW, PAUSE)</td></tr>
<tr><td></td><td>00 : AA</td><td>Mode switch error</td></tr>
</table>

Note 1 : A value proportional to the battery voltage is displayed.
Note 2 : The last error is displayed.
Note 3 : When multiple errors occurred while using the set, they are dispalyed sequentially by pressing the FF (EVR No. NEXT) key.

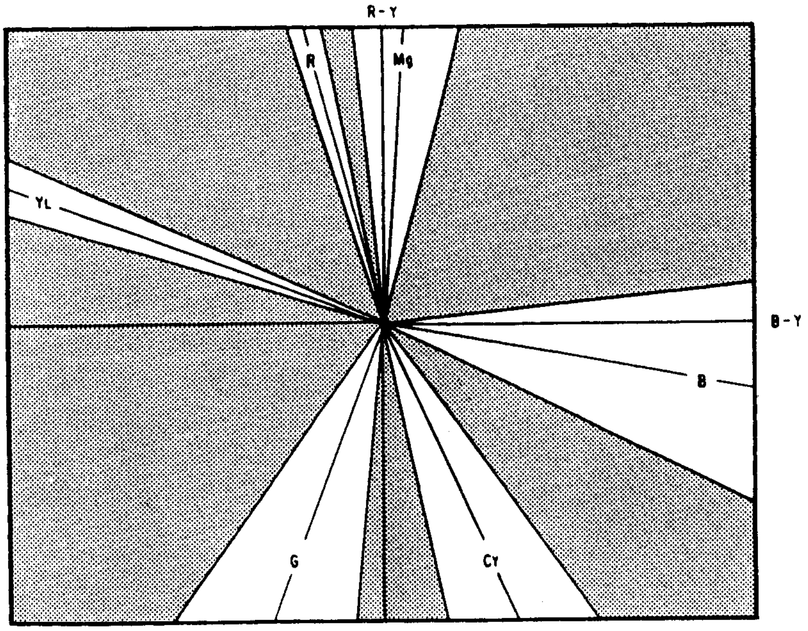
[Service Mode Error Display]

Error	PRESENT EMG Display	LAST EMG Display
No error	00 : 00	00 : 00
Loading motor	00 : 01	00 : 01
REEL FG error at unthreading time	00 : 02	00 : 02
REEL FG error at non-unthreading time	00 : 03	00 : 03
Capstan error	00 : 04	00 : 04
DRUM PG error at drum start time (0)	00 : 05	00 : 05
DRUM PG error at drum start time (1)	01 : 05	01 : 05
DRUM PG error at drum start time (2)	02 : 05	02 : 05
No DRUM PG at drum start time (0)	00 : 06	00 : 06
No DRUM PG at drum start time (1)	01 : 06	01 : 06
No DRUM PG at drum start time (2)	02 : 06	02 : 06
DRUM FG error at drum stationary time (0)	00 : 07	00 : 07
DRUM FG error at drum stationary time (1)	01 : 07	01 : 07
DRUM FG error at drum stationary time (2)	02 : 07	02 : 07
No DRUM PG at drum stationary time (0)	00 : 08	00 : 08
No DRUM PG at drum stationary time (1)	01 : 08	01 : 08
No DRUM PG at drum stationary time (2)	02 : 08	02 : 08
Phase error at drum stationary time (0)	00 : 09	00 : 09

(1): At tape threading time
(2): At tape unthreading time
(0): Others


R-Y
Mg
R
YL
B-Y
B
CY
G

For Vectorscope


R-Y
R
Mg
YL
B-Y
B
G
CY

For Oscilloscope

10-1-4. Cancelling the Service Mode

The service mode is cancelled by shifting the HOLD switch of the adjustment remote control back to the NORMAL position or disconnecting the adjustment remote control from the REMOTE terminal.

[Test Mode]

This equipment has three test modes. They are started by connecting each CN096 terminal of the FC-20P board with a diode (1SS119 or its equivalent).

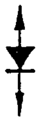
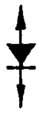
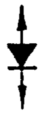
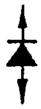
Test Mode	Connection of FC-20P Board CN096	Function
1	Pin ③ (K IN 4)  Pin ② (K OUT 6)	1. A switching position can be adjusted. 2. Error detection is prohibited.
2	Pin ① (K IN5)  Pin ② (K OUT 6)	1. For CH1′ playback frequency characteristic adjustment (at playback time) 2. A battery voltage A/D converted value is displayed on the LCD. (at record time) (same as in the service mode category 1)
3	Pin ③ (K IN 4)  Pin ② (K OUT 6)  Pin ① (K IN 5)	1. Track shift at tape path adjustment time

Fig. 10-2.

9-972-922-11

Sony Corporation
Personal Video Group

English
90D1910-1
Printed in Japan
1990.4
Published by Customer Relations and Service Group

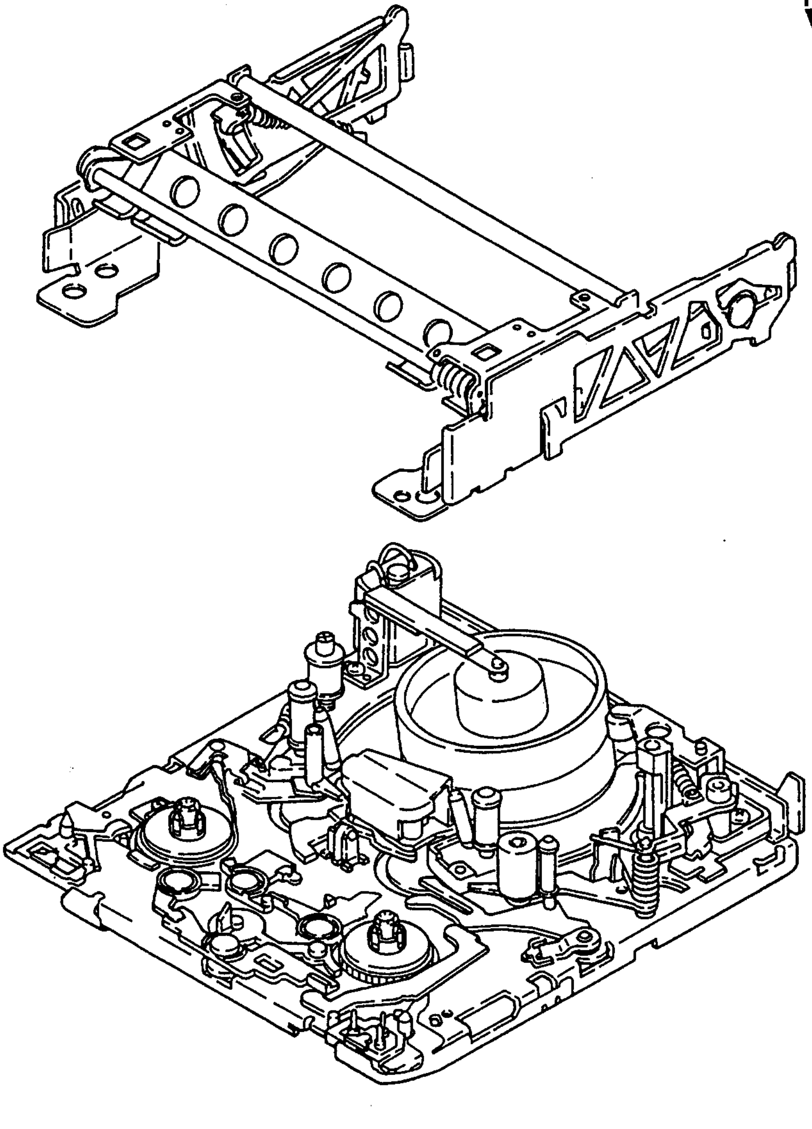
8mm Video MECHANICAL ADJUSTMENT MANUAL III

U MECHANISM

Video 8

Please use in conjunction with the SERVICE MANUAL.

V01571



8 MECHANISM DECK

SONY®

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1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Note: For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

Note: The unit will not work if exposed to a strong light.

1-1-1. How to Trigger the Loading Operation (See Fig. 1-1.)

1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
2) Cover the LED assembly with an opaque cap, etc. ❶.
3) Attach a piece of tape to the RECOG switch ❷ so that the pin is held down.
4) Push the EJECT lever ❸ in the direction of the arrow Ⓐ.

1-1-2. Setting the Playback Mode (See Fig. 1-1.)

1) Follow the procedures in section 1-1-1. above.
2) Put the rubber band ❹ around the S and T reels.
3) Press the PLAY switch of unit, then push the tension regulator arm assembly ❺ in the direction of the arrow Ⓑ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
4) To stop operation, press the STOP switch.

1-1-3. Eject Operation (See Fig. 1-1.)

1) To eject, turn the EJECT switch on.

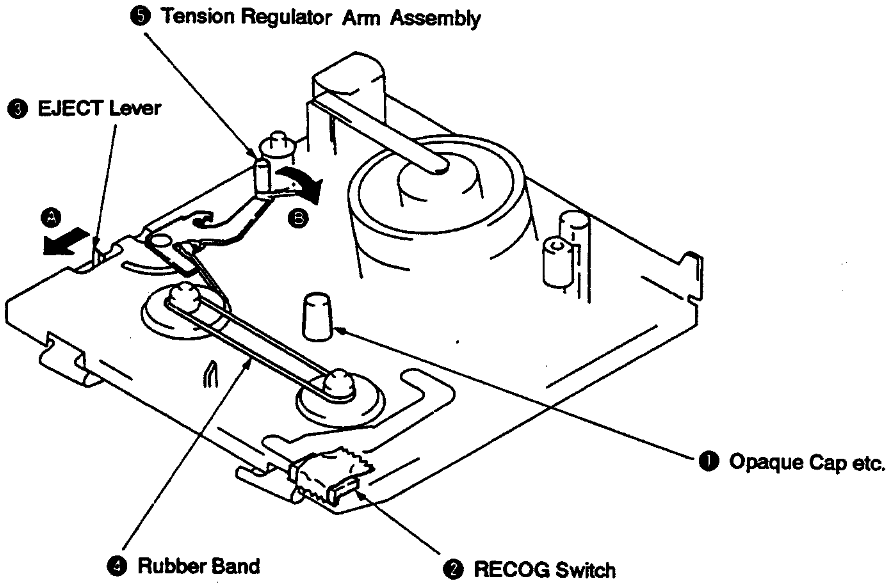


Fig. 1-1.

1-2. THE MODE SELECTOR

1-2-1. Name of Each Part (external) (See Fig. 1-2.)

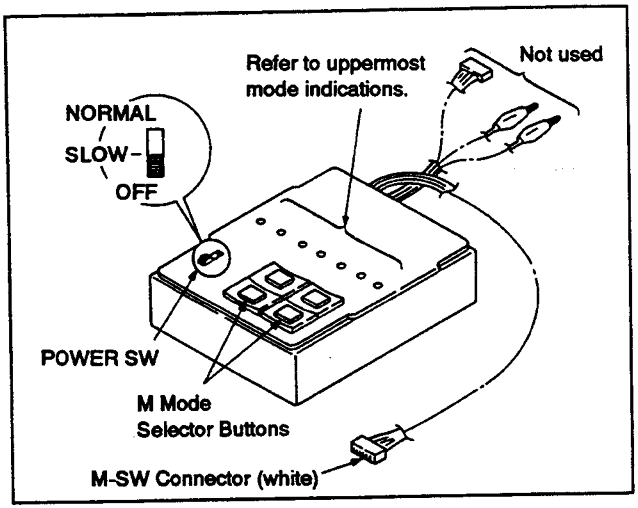

Refer to uppermost mode indications.
Not used
NORMAL
SLOW
OFF
POWER SW
M Mode Selector Buttons
M-SW Connector (white)

Fig. 1-2.

1-2-2. Connections (See Fig. 1-3.)

1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ❶ onto the mode selector.
2) Attach the conversion connector (Ref. No. J-8) ❸ of MODE SELECTOR III to the 6-pin connector (white) ❷ of the mode selector M-SW.
3) Remove the FP-89 flexible board ❺ from the flexible connector ❹.
4) Attach the FP-89 flexible board ❺ to the flexible connector ❻ of the MODE SELECTOR III conversion connector ❸, then attach the 2-pin connector (white) ❽ of the loading motor to the 2-pin connector (white) ❼.

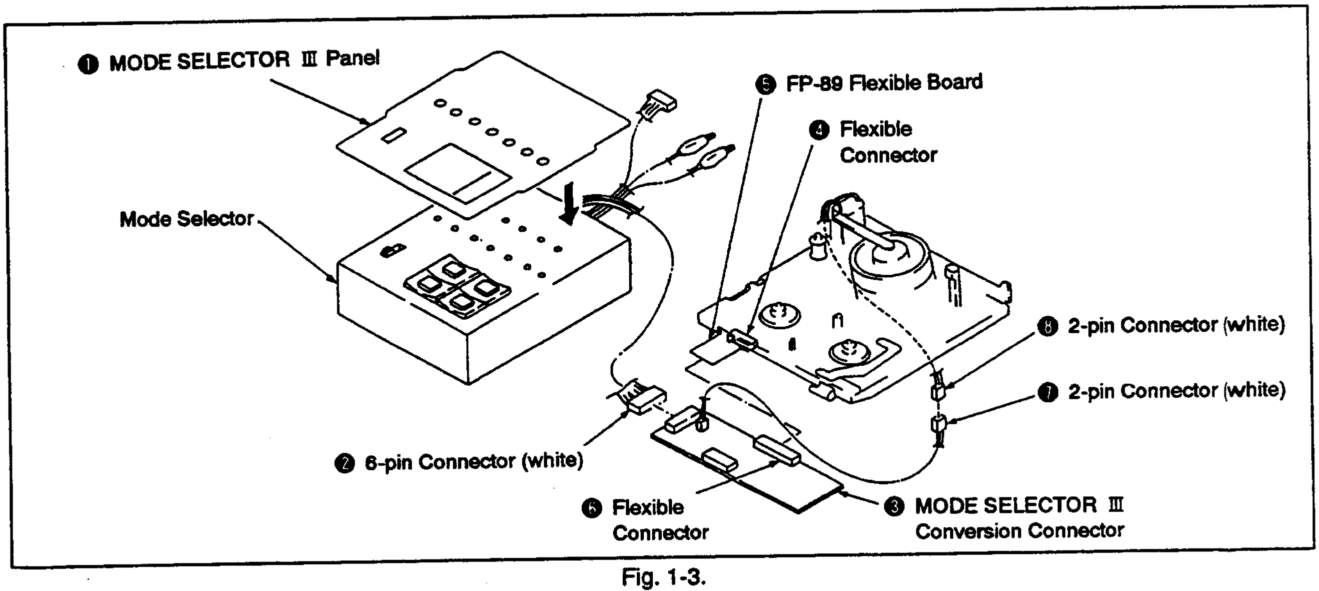

❶ MODE SELECTOR Ⅲ Panel
Mode Selector
❺ FP-89 Flexible Board
❹ Flexible Connector
❽ 2-pin Connector (white)
❼ 2-pin Connector (white)
❷ 6-pin Connector (white)
❻ Flexible Connector
❸ MODE SELECTOR Ⅲ Conversion Connector

Fig. 1-3.

1-2-3. Handling (See Figs. 1-2. and 1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (IA) → ULD → (IB) → STOP → (IC) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

Note: For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The IA, IB and IC indications light up during mode changes.

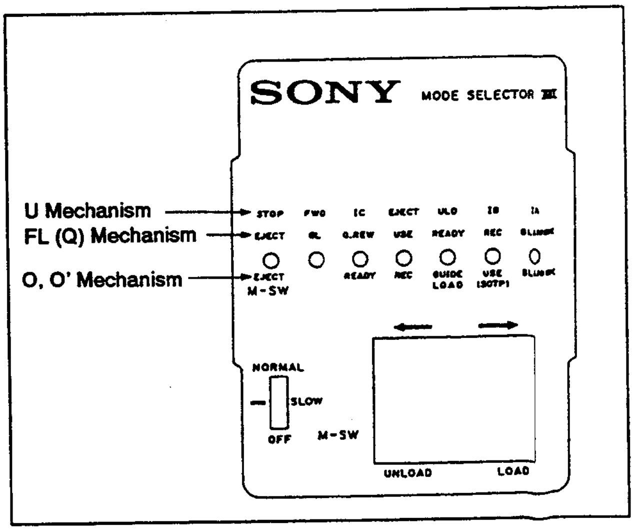

SONY MODE SELECTOR Ⅲ
U Mechanism
FL (Q) Mechanism
O, O' Mechanism
STOP
FWD
IC
EJECT
ULD
IB
IA
EJECT
PL
Q.REW
USE
READY
REC
BLINK
EJECT
M-SW
READY
REC
GUIDE LOAD
USE (STOP)
BLINK
NORMAL
SLOW
OFF
M-SW
UNLOAD
LOAD

Fig. 1-4.

2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

2-1. ROTARY DRUM ASSEMBLY CLEANING

1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

Note: Do not drive the drum with the motor, and do not turn it clockwise.
Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

2-2. TAPE PATH CLEANING

1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 2-1).

2-3. DRIVE SYSTEM CLEANING

1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

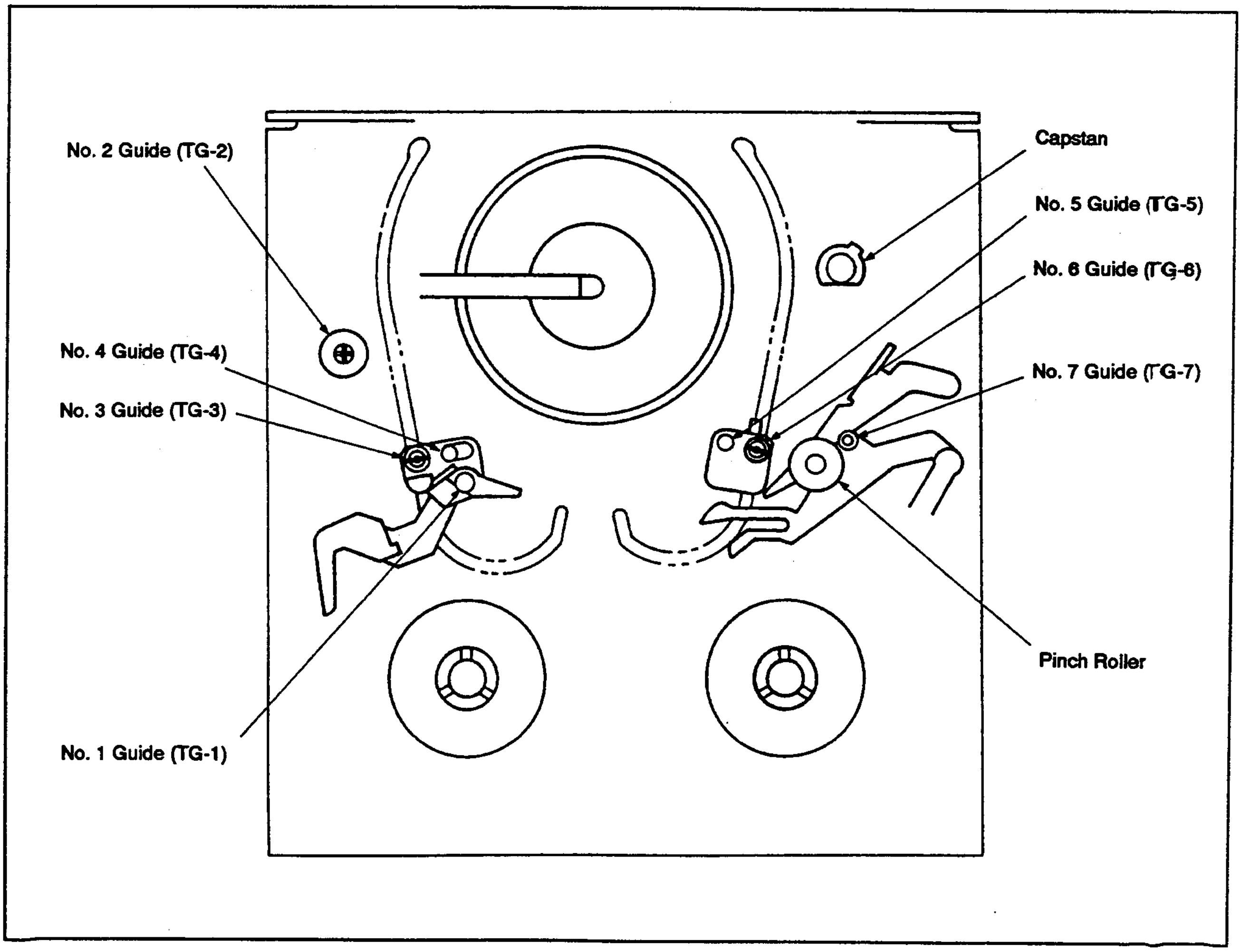


Fig. 2-1.

2-4. PERIODICAL CHECK ITEMS

○ Cleaning ◎ Lubrication ☆ Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demagnetizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-866-01
	Relay belt (long)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-865-01
	Capstan shaft	–	◎	–	◎	–	◎	–	◎	–	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	–	◎	–	◎	–	◎	–	◎	–	◎	
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	1-541-612-11
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD, RVS torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

Notes: When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds). Specified oil: Part No. 7-661-018-01 (Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a a 2mm-diameter rod as shown in Fig. 2-2.

On grease:

- Use the specified grease. Grease: Part No. 7-662-010-08 (Sony grease SGL-701)

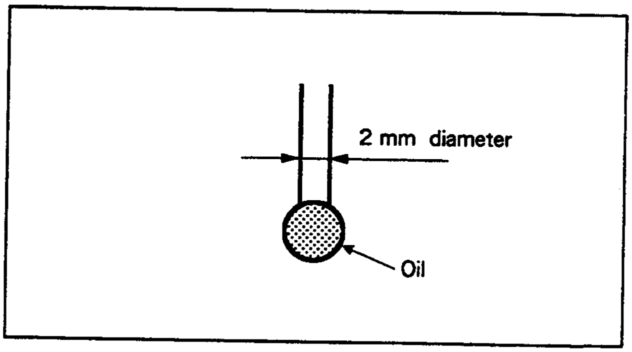


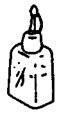
Fig. 2-2.

2-5. SERVICING TOOLS

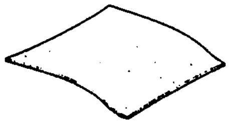
Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	–	
J-2	Chamois cloth	2-034-697-00	–	
J-3	Head demagnetizer	Commercially available	–	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-824-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Hexagonal wrench detection (0.89 mm) or L wrench (0.89 mm)	7-700-766-01 7-700-736-06		Tape path
J-12	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope
Analog tester (20 kΩ)

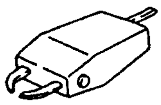
J-1



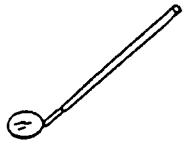
J-2



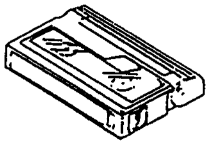
J-3



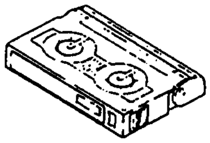
J-4



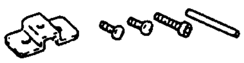
J-5



J-6

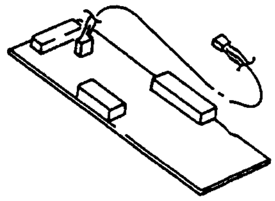


J-7

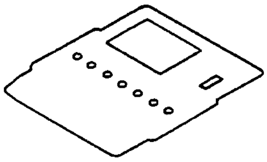


(Attached to the maintenance rotary upper drum)

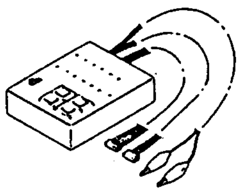
J-8



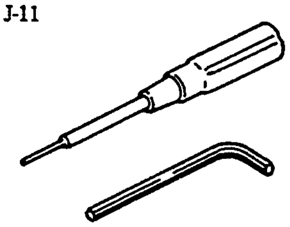
J-9



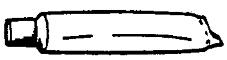
J-10



J-11



J-12



3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Notes:
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
- Modes within a frame ☐ are those set by pressing the buttons of the mode selector.

3-1. HC ROLLER ASSEMBLY

1. Removal (See Fig. 3-1.)

1) Remove the screw ❶, then remove the HC roller assembly ❷.

2. Installation (See Fig. 3-1.)

1) Align the two dowels ❸ attached to the HC roller assembly ❷ with the two holes ❹ in the mechanism chassis.
2) Secure the HC roller assembly ❷ with the screw ❶.

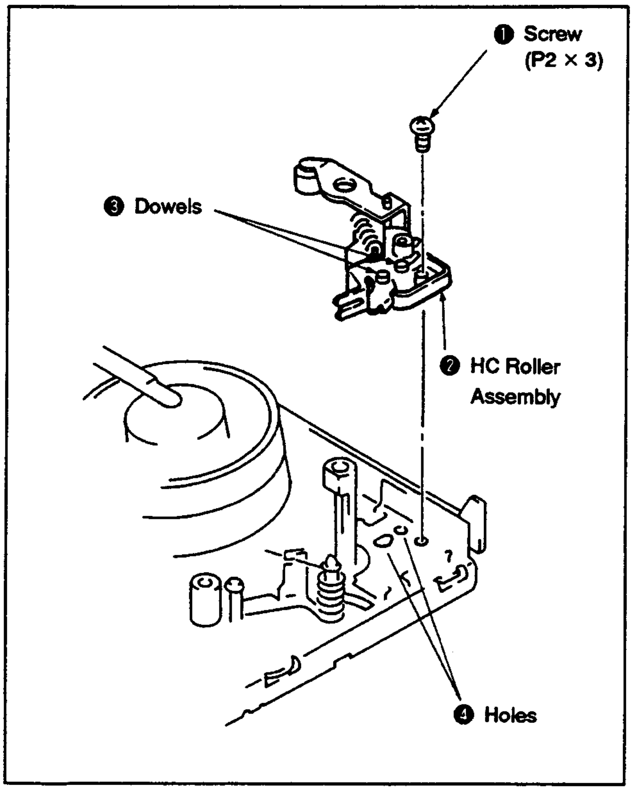

❶ Screw (P2 × 3)
❸ Dowels
❷ HC Roller Assembly
❹ Holes

Fig. 3-1.

3-2. GUIDE GUARD ASSEMBLY

1. Removal (See Fig. 3-2.)

Remove the screw ❶, then remove the guide guard assembly ❷.

2. Installation (See Fig. 3-2.)

1) Align the dowel ❸ attached to the guide guard assembly ❷ with the hole ❹.
2) Secure the guide guard assembly ❷ with the screw ❶.

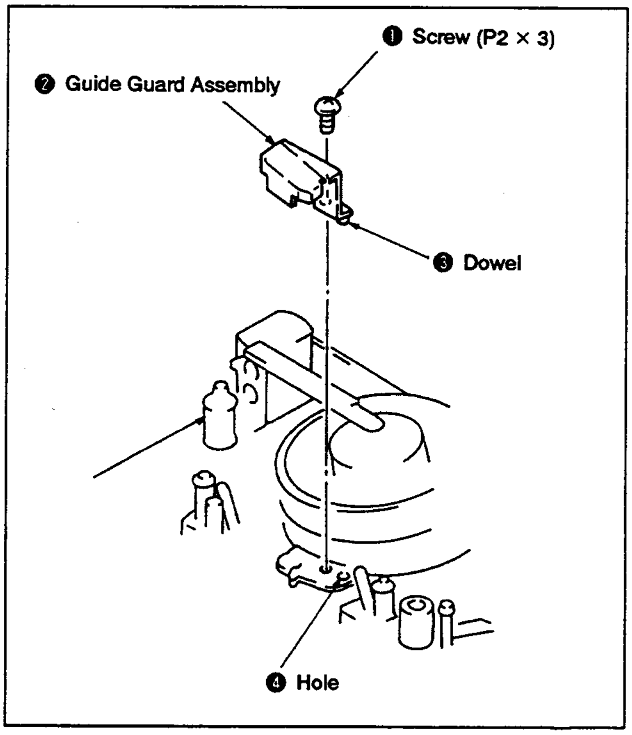

❶ Screw (P2 × 3)
❷ Guide Guard Assembly
❸ Dowel
❹ Hole

Fig. 3-2.

3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

1. Removal (See Fig. 3-3.)

1) Set the ULD mode.
2) Turn the stopper ❶ in the direction of the arrow Ⓐ as far as it will go.
3) Remove the two screws ❷, then remove the DC motor ❸.

2. Installation (See Fig. 3-3.)

1) Align the two screwed dowels ❹ with the two holes ❺, then engage the toothed part ❻ with the connecting gear ❼.
2) Secure the DC motor assembly ❸ with the two screws ❷.
3) Turn the stopper ❶ in the direction of the arrow Ⓑ as far as it will go.

Note:
- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ❸ and the chassis.
- Do not touch the capstan motor axle*, the oil seal* and the rotor*.

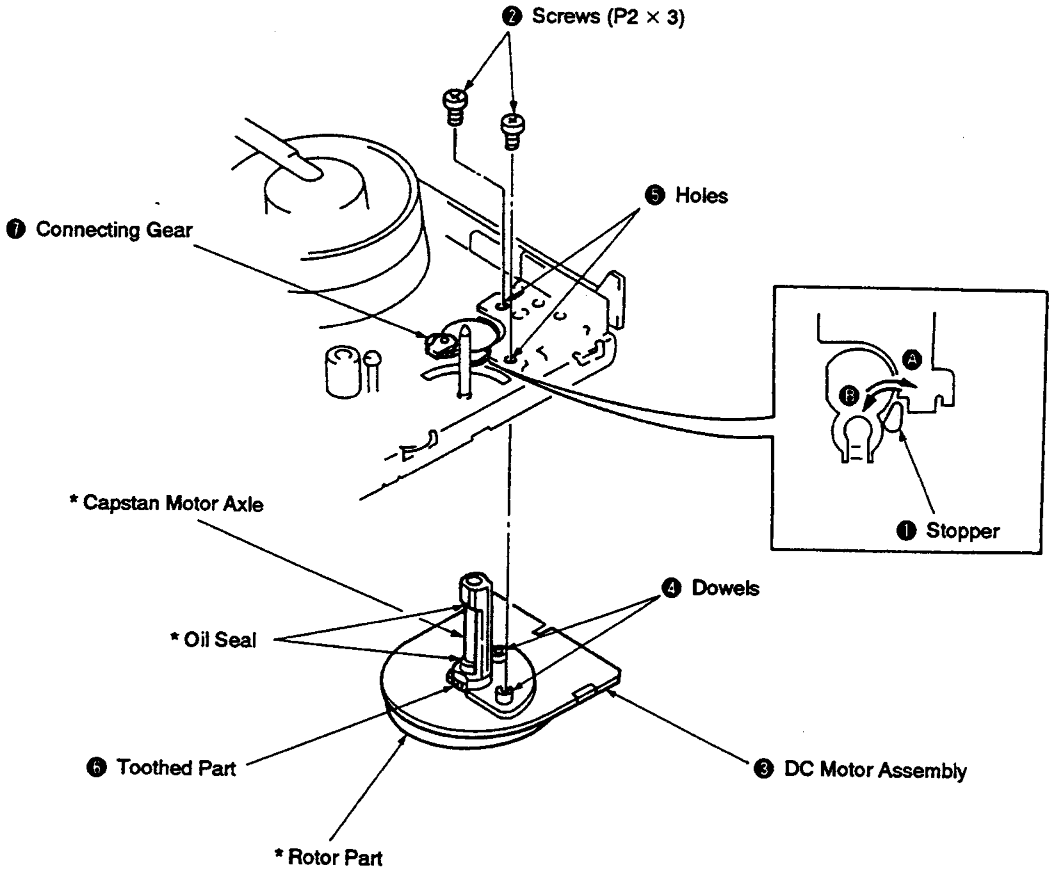

❷ Screws (P2 × 3)
❺ Holes
❼ Connecting Gear
Ⓐ
Ⓑ
❶ Stopper
* Capstan Motor Axle
❹ Dowels
* Oil Seal
❻ Toothed Part
❸ DC Motor Assembly
* Rotor Part

Fig. 3-3.

3-4. S BRAKE, T BRAKE

1. Removal (See Fig. 3-4.)

1) Remove the torsion coil spring (ST) ❶.
2) Remove the axle holding pin ❷, then remove the T brake ❸.
3) Remove the axle holding pin ❹, then remove the S brake ❺.

2. Installation (See Fig. 3-4.)

1) While fitting the toothed part ❻ into the notch ❼, mount the S brake ❺.
2) Insert the axle holding pin ❹.
3) Insert the axle ❽ to the S reel side of the brake release arm ❾ so that the Ⓐ part comes closer to the drum than part Ⓑ, and mount the T brake ❸.
4) Insert the axle holding pin ❷.
5) Insert the torsion coil spring (ST) ❶ below the claw ⓫ of the axle ❿, then hook it to two claws ⓬.

Note: Confirm that the claws of axle holding pins ❷ and ❹ are not broken before assembling.

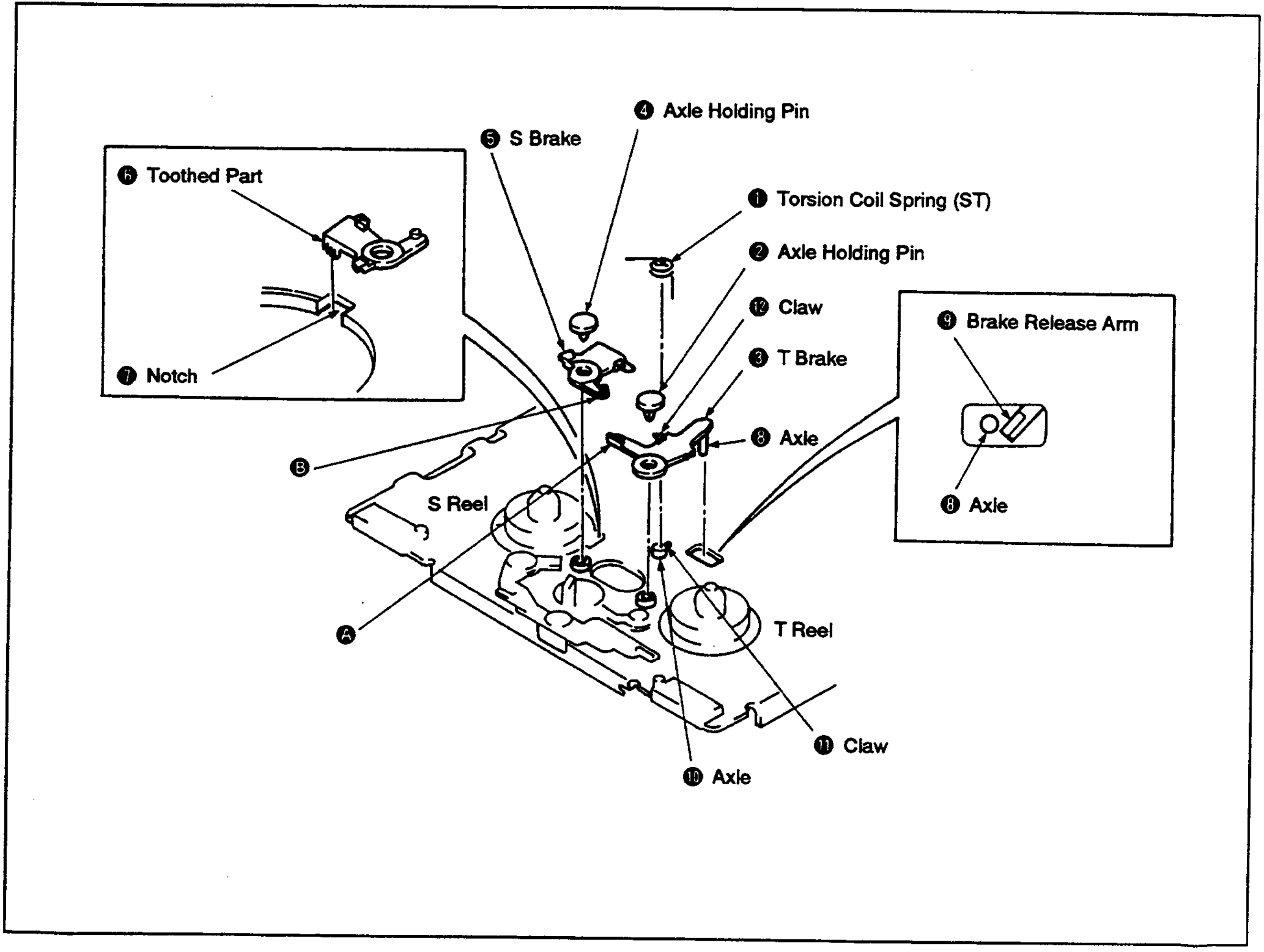

❹ Axle Holding Pin
❺ S Brake
❻ Toothed Part
❼ Notch
❶ Torsion Coil Spring (ST)
❷ Axle Holding Pin
⓬ Claw
❸ T Brake
❽ Axle
❾ Brake Release Arm
❽ Axle
Ⓑ
S Reel
Ⓐ
T Reel
⓫ Claw
❿ Axle

Fig. 3-4.

3-5. LB BRAKE, AXLE HOLDING PINS

1. Removal (See Fig. 3-5.)

1) Remove the screw ❶, then remove the TL holding plate ❷.
2) Remove the axle holding pin ❸, then remove the LB brake ❹.
3) Remove the axle holding pin ❺, then remove the LB lever ❻.

2. Installation (See Fig. 3-5.)

1) Mount the LB lever ❻ matching it to pin ❼ of the LB gear, then secure it with the axle holding pin ❺.
2) Insert the pin ❽ into the notch ❾ of the LB lever ❻, then mount the LB brake ❹ while inserting the toothed part ❿ into the notch ⓫.
3) Insert the axle holding pin ❸.
4) Align the dowel ⓬ with the hole ⓭, then mount the TL holding plate and secure it with the screw ❶.

Note: Confirm that the claws of axle holding pins ❸ and ❺ are not broken before assembling.

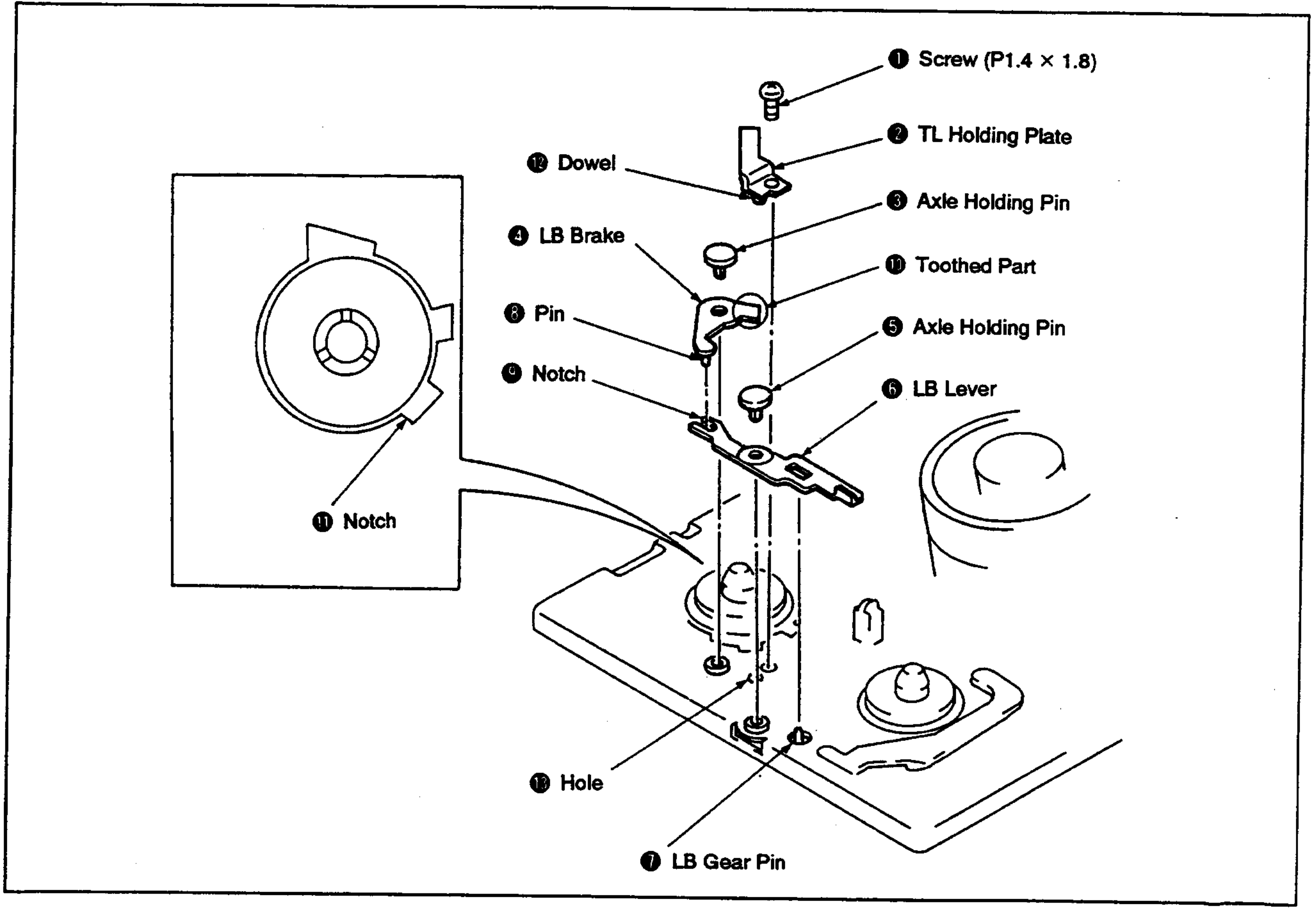

❶ Screw (P1.4 × 1.8)
❷ TL Holding Plate
⓬ Dowel
❸ Axle Holding Pin
❹ LB Brake
❿ Toothed Part
❽ Pin
❺ Axle Holding Pin
❾ Notch
❻ LB Lever
⓫ Notch
⓭ Hole
❼ LB Gear Pin

Fig. 3-5.

3-6. LB RELEASE ARM

1. Removal (See Fig. 3-6.)

1) While pushing the claw ❶ in the direction of the arrow, remove the LB release arm ❷.

2. Installation (See Fig. 3-6.)

1) Fit the LB release arm ❷ to the axle ❸, insert protrusions ⓐ, ⓑ, ⓒ, ⓓ into the three holes ❹, then secure with the claw ❶.

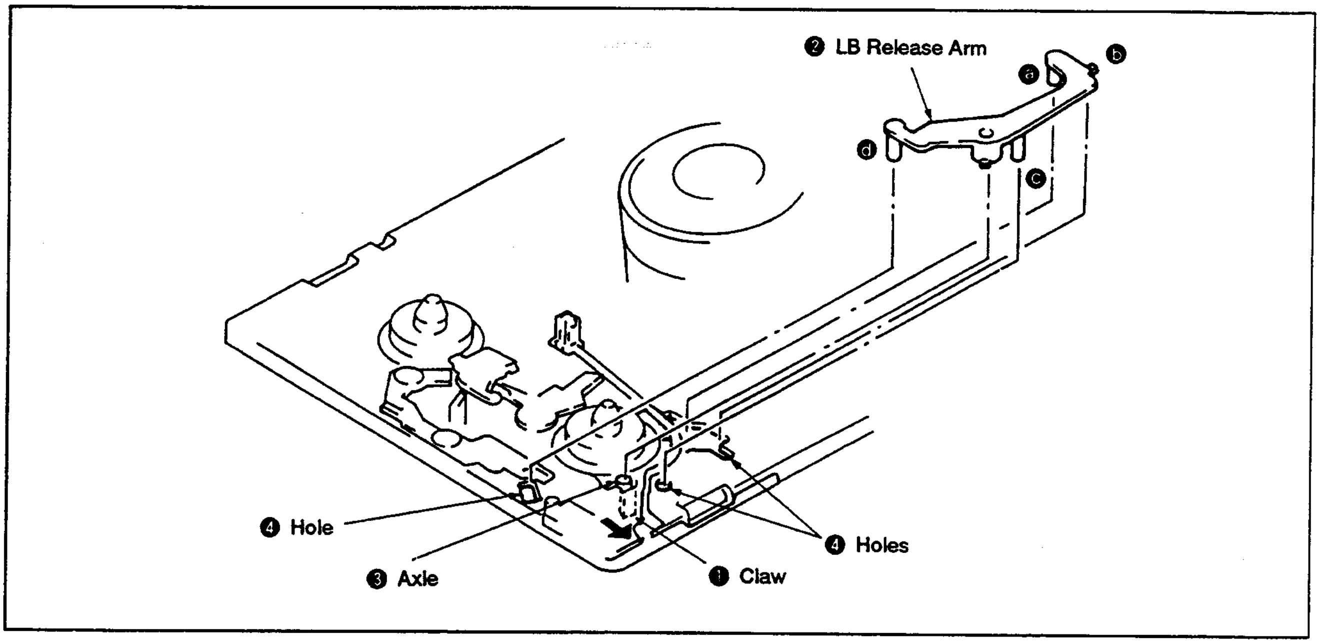

❷ LB Release Arm
ⓑ
ⓐ
ⓓ
ⓒ
❹ Hole
❸ Axle
❶ Claw
❹ Holes

Fig. 3-6.

3-7. RK STOPPER, RK STOPPER ARMS

1. Removal (See Fig, 3-7.)

1) Remove the torsion coil spring (RK) ❶.
2) Open the chassis claw ❷, then remove the RK stopper arm ❸.
3) Remove the RK stopper ❹.

2. Installation (See Fig. 3-7.)

1) Mount the RK stopper ❹ onto the axle ❺.
2) Mount the RK stopper arm ❸ onto the axle ❻, insert Pin ❿ into hole ⓫, then hook the claw ❷ of the chassis to the hole ❼.
3) Insert the torsion coil spring (RK) ❶ into the axle ❺, then hook it to claws ❽ and ❾.

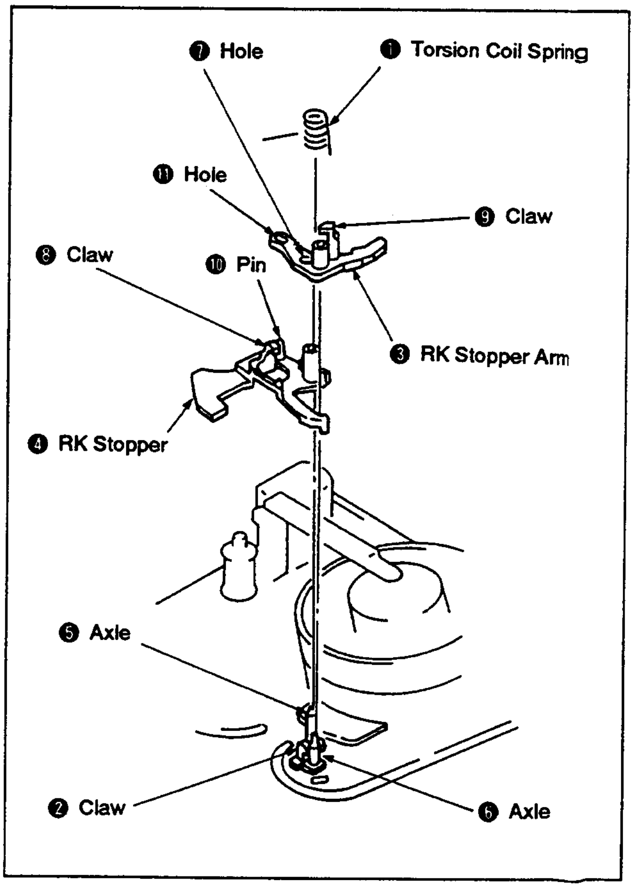

❼ Hole
❶ Torsion Coil Spring
⓫ Hole
❾ Claw
❽ Claw
❿ Pin
❸ RK Stopper Arm
❹ RK Stopper
❺ Axle
❷ Claw
❻ Axle

Fig. 3-7.

3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

1. Removal (See Fig. 3-8.)

1) Set the $\boxed{\text{IB}}$ mode.
2) Remove the stopper washer ❶, then remove the pinch arm assembly ❷.
3) Bend the claw ❹ inside hole ❸ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ❺.
4) Remove the TG-7 arm assembly ❻.

2. Installation (See Fig. 3-8.)

1) Grease the inner surfaces of hole ❼ (See Fig. A).
2) Insert the axle ❽ of the TG-7 arm assembly ❻ into the hole ❼.
3) Grease the shaded section ⓐ (See Fig. A).
4) Insert the TG-7 plate spring ❺ into the hole ❸, then secure it with the claw ❹.
5) Apply half a drop of oil to the axle ❾ (See Fig. B).
6) Fit the pinch arm assembly ❷ to the axle ❾ and insert the pinch roller sub arm assembly tab ❿ into the ⓑ part.
7) Install the stopper washer ❶.

Note:
- Take care not to grease the screw ⓫ of the TG-7 arm assembly ❻ (See Fig. A).
- When fitting the pinch arm assembly ❷ to the axle ❾, make sure that it does not touch the TG-7 guide ⓬ or the rubber roller ⓭.
- After assembling, be sure to perform tape path adjustment as described in section 4.

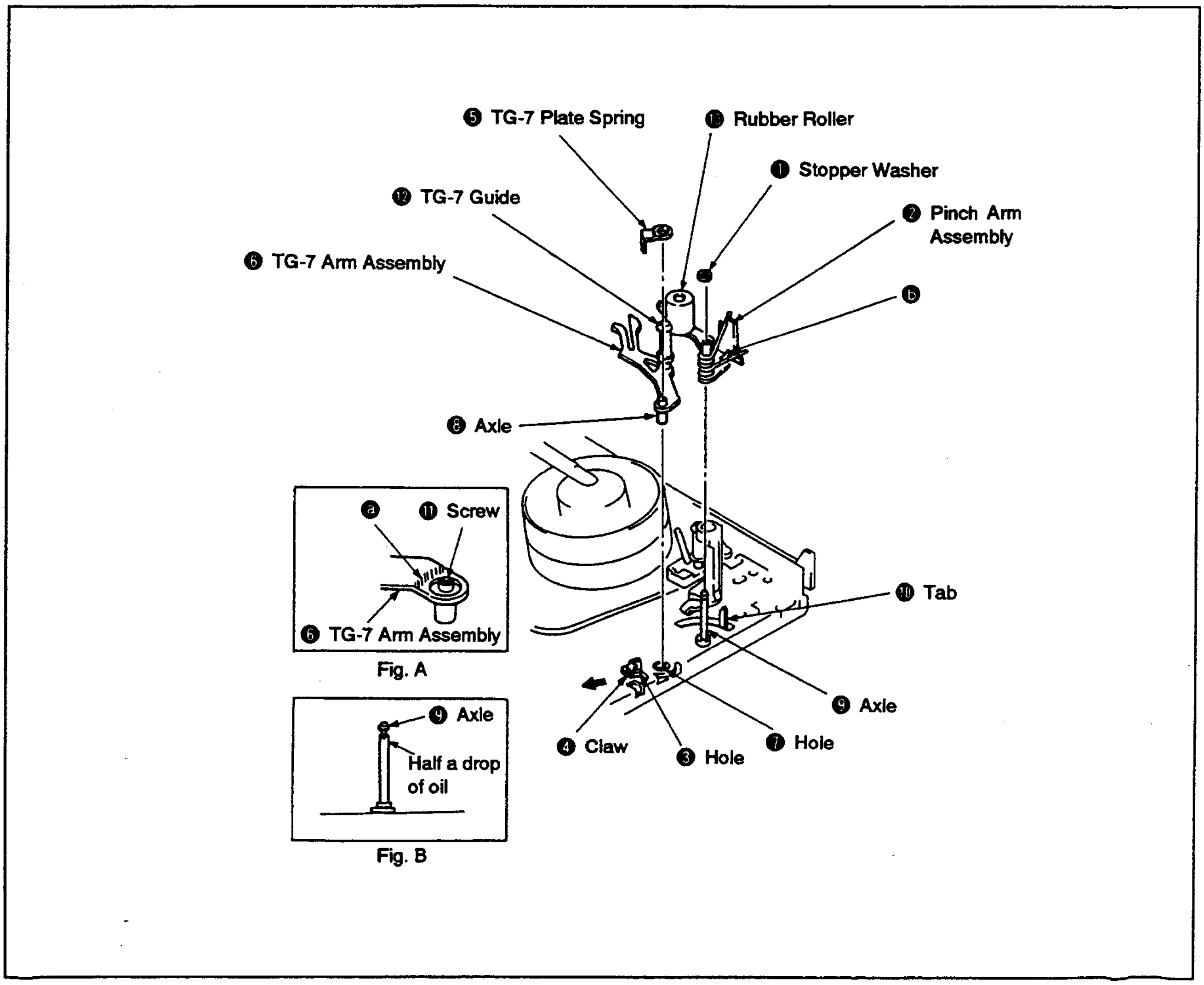

❺ TG-7 Plate Spring
⓭ Rubber Roller
❶ Stopper Washer
⓬ TG-7 Guide
❷ Pinch Arm Assembly
❻ TG-7 Arm Assembly
ⓑ
❽ Axle
ⓐ
⓫ Screw
❻ TG-7 Arm Assembly
❿ Tab
❾ Axle
❾ Axle
Half a drop of oil
❹ Claw
❸ Hole
❼ Hole

Fig. A

Fig. B

Fig. 3-8.

3-9. TG-2 ASSEMBLY

1. Removal (See Fig. 3-9.)

1) Remove the TG-2 upper flange assembly ❶.
2) Remove the TG-2 roller ❷, the TG-2 sleeve ❸, the TG-2 lower flange ❹ and the compression spring ❺.

2. Installation (See Fig. 3-9.)

1) Mount the compression spring ❺, the TG-2 lower flange ❹, the TG-2 sleeve ❸ and the TG-2 roller ❷ to the axle.
2) Secure the TG-2 upper flange ❶ to the axle by rotating it 4 to 6 turns.

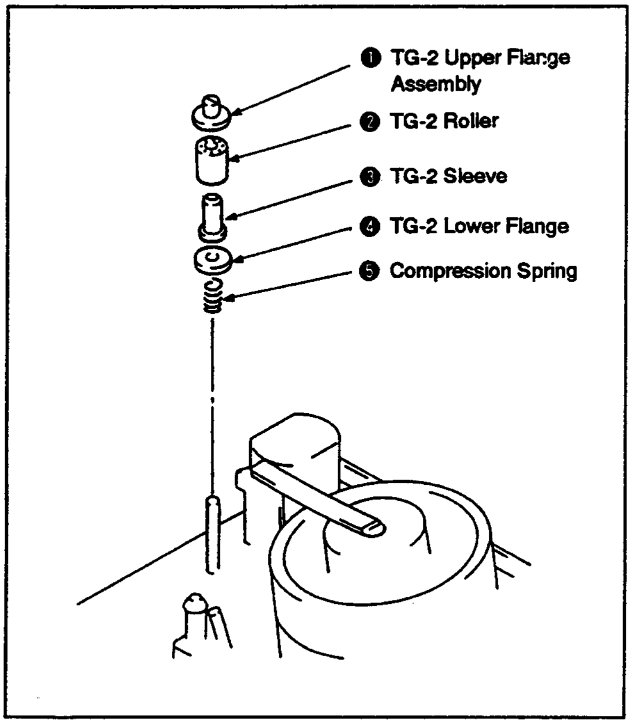

❶ TG-2 Upper Flange Assembly
❷ TG-2 Roller
❸ TG-2 Sleeve
❹ TG-2 Lower Flange
❺ Compression Spring

Fig. 3-9.

3. TG-2 Height Preset (see Fig. 3-10.)

1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by turning the TG-2 upper flange ❶.

Note: After adjustment, be sure to perform tape path adjustment as described in section 4.

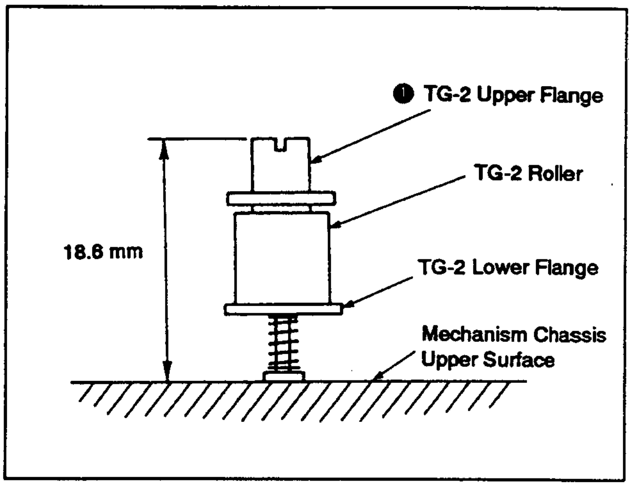

❶ TG-2 Upper Flange
TG-2 Roller
18.6 mm
TG-2 Lower Flange
Mechanism Chassis Upper Surface

Fig. 3-10.

3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

1. Removal (See Fig. 3-11.)

1) Remove the S brake and T brake as described in section 3-4.
2) Remove the TL holding plate as described in section 3-5.
3) Remove the tension regulator band assembly as described in section 3-11.
4) Remove the S reel table assembly ❶.
5) Turn the stopper ❷ approx. 90 ° in the direction of the arrow Ⓐ.
6) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, remove the T reel table assembly ❹.

2. Installation (See Fig. 3-11.)

1) Apply half a drop of oil to the axle ❺ (See Fig. A).
2) Move the RK gear ❻ in the direction of the arrow Ⓒ and the TS brake ❼ in the direction of the arrow Ⓓ, putting them out of the way.
3) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, mount the T reel table assembly ❹ onto the axle ❺, then turn the stopper ❷ in the direction of the arrow Ⓔ as far as it will go.
4) Apply half a drop of oil to the axle ❽ (See Fig. B).
5) Move the RK gear ❻ in the direction of the arrow Ⓕ, the UL brake ❾ in the direction of the arrow Ⓖ and the LB brake ❿ in the direction of the arrow Ⓗ, putting them out of the way.
6) Mount the S reel table ❶ onto the axle ❽.
7) Mount the tension regulator band assembly as described in section 3-11.
8) Mount the TL holding plate as described in section 3-5.
9) Mount the S brake and T brake assemblies as described in section 3-4.

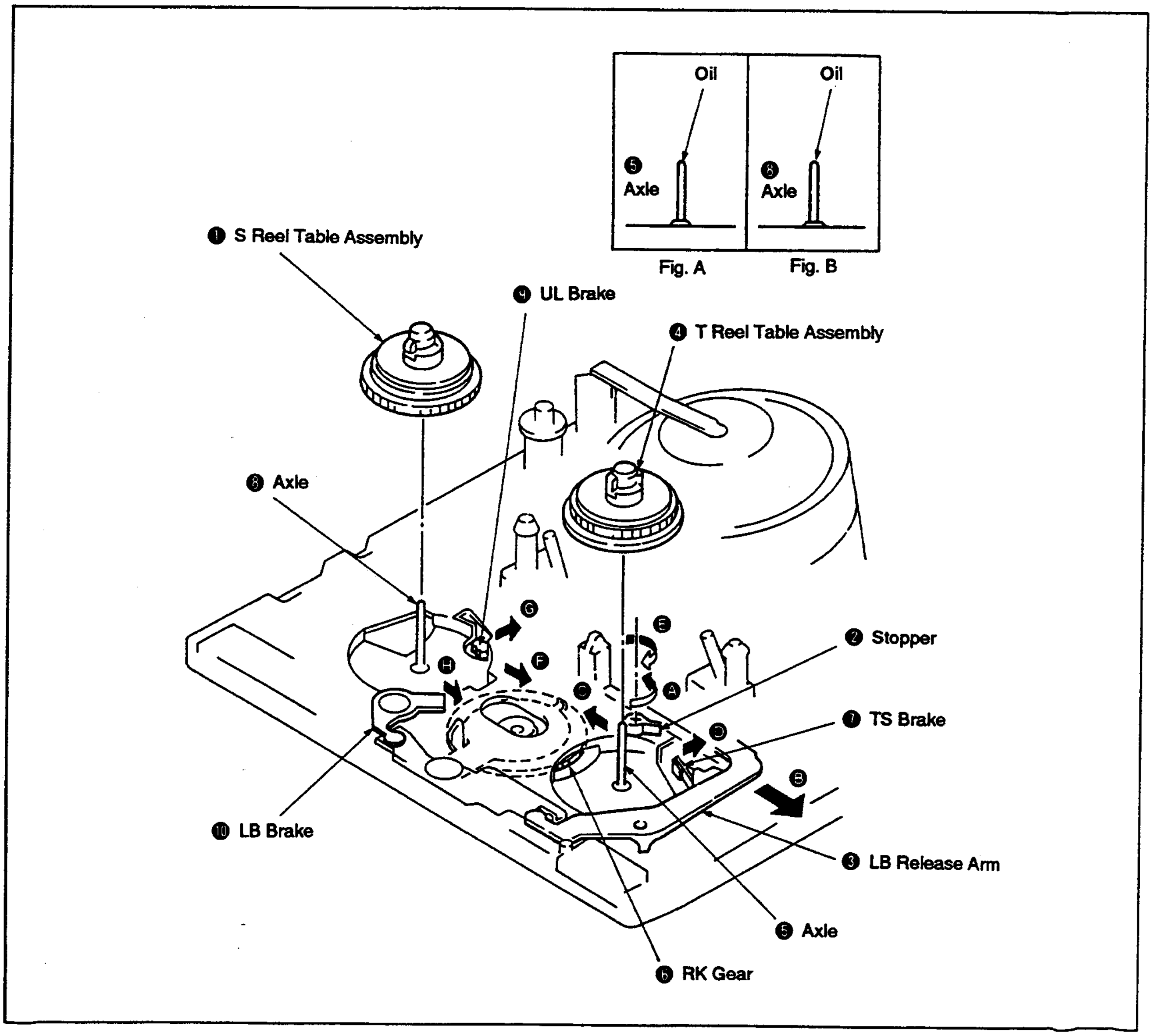

Oil
❺ Axle
Oil
❽ Axle
Fig. A
Fig. B
❶ S Reel Table Assembly
❾ UL Brake
❹ T Reel Table Assembly
❽ Axle
Ⓖ
Ⓔ
❷ Stopper
Ⓗ
Ⓕ
Ⓒ
Ⓐ
❼ TS Brake
Ⓓ
Ⓑ
❿ LB Brake
❸ LB Release Arm
❺ Axle
❻ RK Gear

Fig. 3-11.

3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

1. Removal (See Fig. 3-12.)

1) Remove the TL holding plate as described in section 3-5.
2) Remove the screw ❶.
3) Using a thin screwdriver or the like, remove the tension regulator band assembly ❹ from the axle ❸ of tension regulator arm assembly ❷.
4) Remove the tension spring ❺.
5) Remove the stopper washer ❻ from the back of the mechanism chassis, then remove the tension regulator arm assembly ❷.
6) Open the claw ❼, then remove the adjust arm ❽.

Note: When removing the tension regulator band assembly ❹, take care not to twist or bend it, and not to touch the felt surface ❾.

2. Installation (See Fig. 3-12.)

1) Engage the adjust arm ❽ in the position shown in Fig. A, then close the claw ❼.
2) Apply half a drop of oil to the hole ❿.
3) Mount the tension regulator arm assembly ❷, then insert it into the slot ⓫ so that the ⓐ part comes to the arrow Ⓐ side of the switch lever assembly (See Fig. B).
4) While holding the tension regulator arm assembly ❷ from the mechanism chassis front, secure it with the stopper washer ❻ from the back.
5) Hook the R hook of the tension spring ❺ to the adjust arm ❽ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ❷.
6) Mount the tension regulator band assembly ❹ onto the axle ❸ of tension regulator arm assembly ❷, and place it so that the felt surface ❾ comes against the shaded portion of the S reel table assembly ⓬.
7) Mount the tension regulator plate ⓭ of the tension regulator band assembly ❹ so that it is aligned with the dowel ⓮ of the mechanism chassis, then secure it temporarily with the screw ❶.
8) Mount the TL holding plate as described in section 3-5.
9) Adjust tension regulator FWD position as described in section 3-12.
10) Perform adjust arm adjustment as described in section 3-22.

Note: When mounting the tension regulator band assembly ❷, take care not to twist or bend it, and not to touch the felt surface ❾.

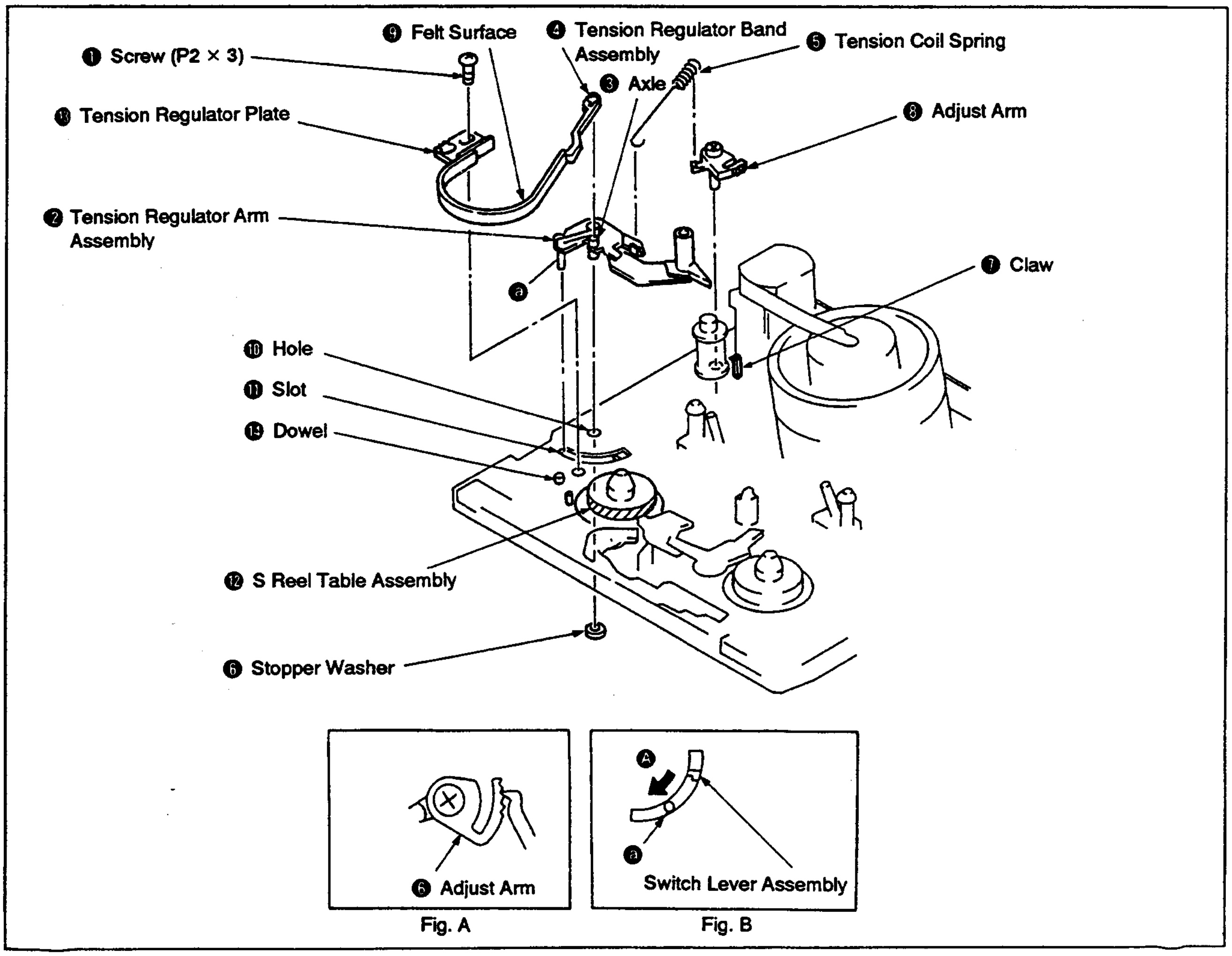

❶ Screw (P2 × 3)
❾ Felt Surface
❹ Tension Regulator Band Assembly
❺ Tension Coil Spring
❸ Axle
⓭ Tension Regulator Plate
❽ Adjust Arm
❷ Tension Regulator Arm Assembly
❼ Claw
ⓐ
❿ Hole
⓫ Slot
⓮ Dowel
⓬ S Reel Table Assembly
❻ Stopper Washer
❽ Adjust Arm
Ⓐ
ⓐ
Switch Lever Assembly

Fig. A

Fig. B

Fig. 3-12.

3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 3-13.)

1) Load a cassette tape and set the FWD mode.
2) Confirm whether the distance between ⓐ part of the tension regulator arm ❶ and the groove ❷ of the chassis is 1.1 ± 0.3 mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
3) Loosen the fixing screw ❹ of the tension regulator band assembly ❸.
4) Slide the tension regulator plate ❺ in the direction of the arrow Ⓐ if the measured distance is over the specified range, and in the direction of the arrow Ⓑ if it is under that range. Then, fix it with the screw ❹.
5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

Note: Use a cassette with the tape advanced halfway.

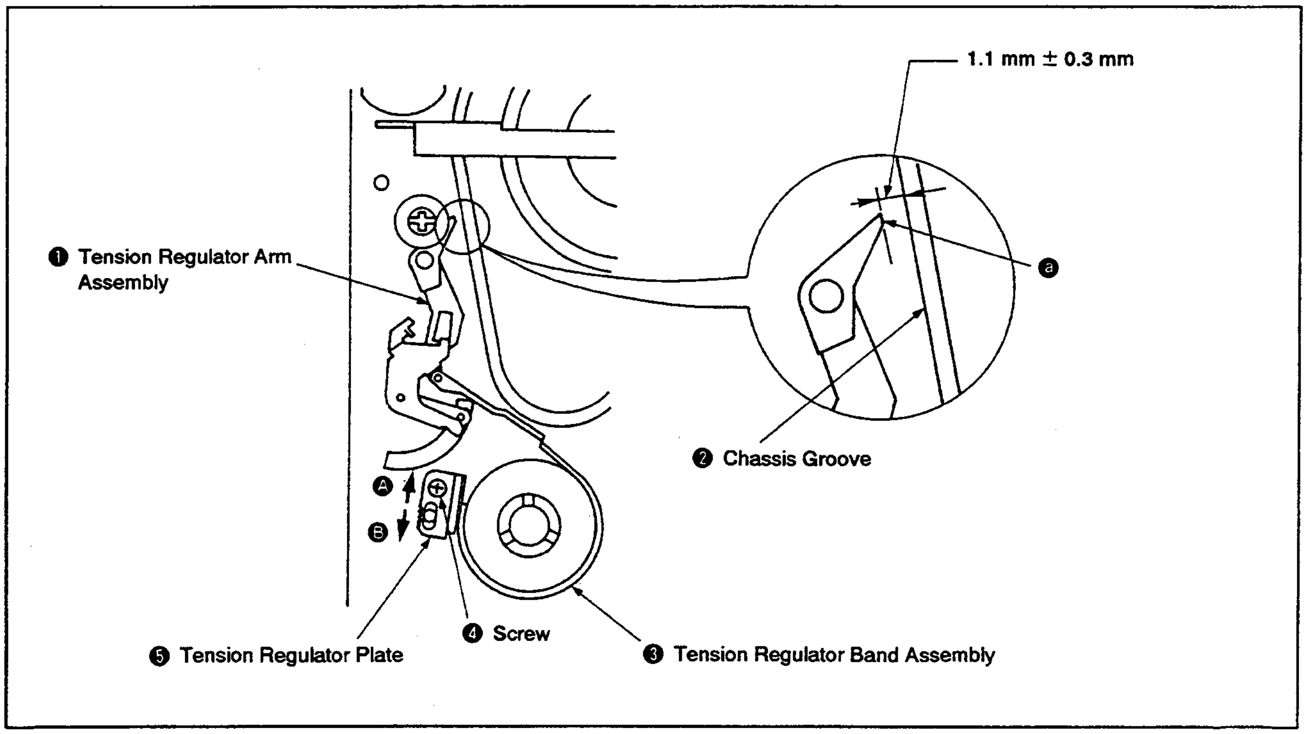

1.1 mm ± 0.3 mm
❶ Tension Regulator Arm Assembly
ⓐ
❷ Chassis Groove
Ⓐ
Ⓑ
❹ Screw
❺ Tension Regulator Plate
❸ Tension Regulator Band Assembly

Fig. 3-13.

3-13. DRUM ASSEMBLY, DEW SENSOR

1. Removal (See Fig. 3-14.)

1) Set the EJECT mode.
2) Remove the flexible board ❶ and the two connectors ❷.
3) Remove the guide guard assembly as described in section 3-2.
4) Remove the screw ❸, then remove the axle ground terminal ❹.
5) Remove the three screws ❺, then remove the drum assembly ❻ from the mechanism chassis.
6) Remove the connector ❿
7) Remove the screw ❼, then remove the dew sensor ❽.

Note:
- When removing the drum assembly ❻ from the mechanism chassis, take care not to cut the flexible board ❶ or the harness.
- Take care not to touch the head tip ❾.

2. Installation (See Fig. 3-14.)

1) Insert part ⓐ of the dew sensor ❽ into the notch ⓫ of the mechanism chassis, then secure it with the screw ❼.
2) Mount the connector ❿.
3) Clamp the harness ⓯ of the dew sensor ❽ with the reinforcing the claw ⓰ of the plate SS assembly (See Fig. A).
4) Insert the connector ❷ and the flexible board ❶ into the hole ⓬ of the mechanism chassis, align the drum assembly ❻ with the two dowels ⓭ and secure it with the three screws ❺.
5) Align the axle ground terminal ❷ with the two dowels ⓮ of the mechanism chassis and secure it with the screw ❸.
6) Mount the guide guard assembly as described in section 3-2.
7) Mount the two connectors ❷ and the flexible board ❶.

Note:
- Take care not to cut the flexible board ❶ or the harness ⓯.
- Take care not to touch the head tip ❾.
- After assembling, be sure to perform Tape Path Adjustment following instructions in section 4.

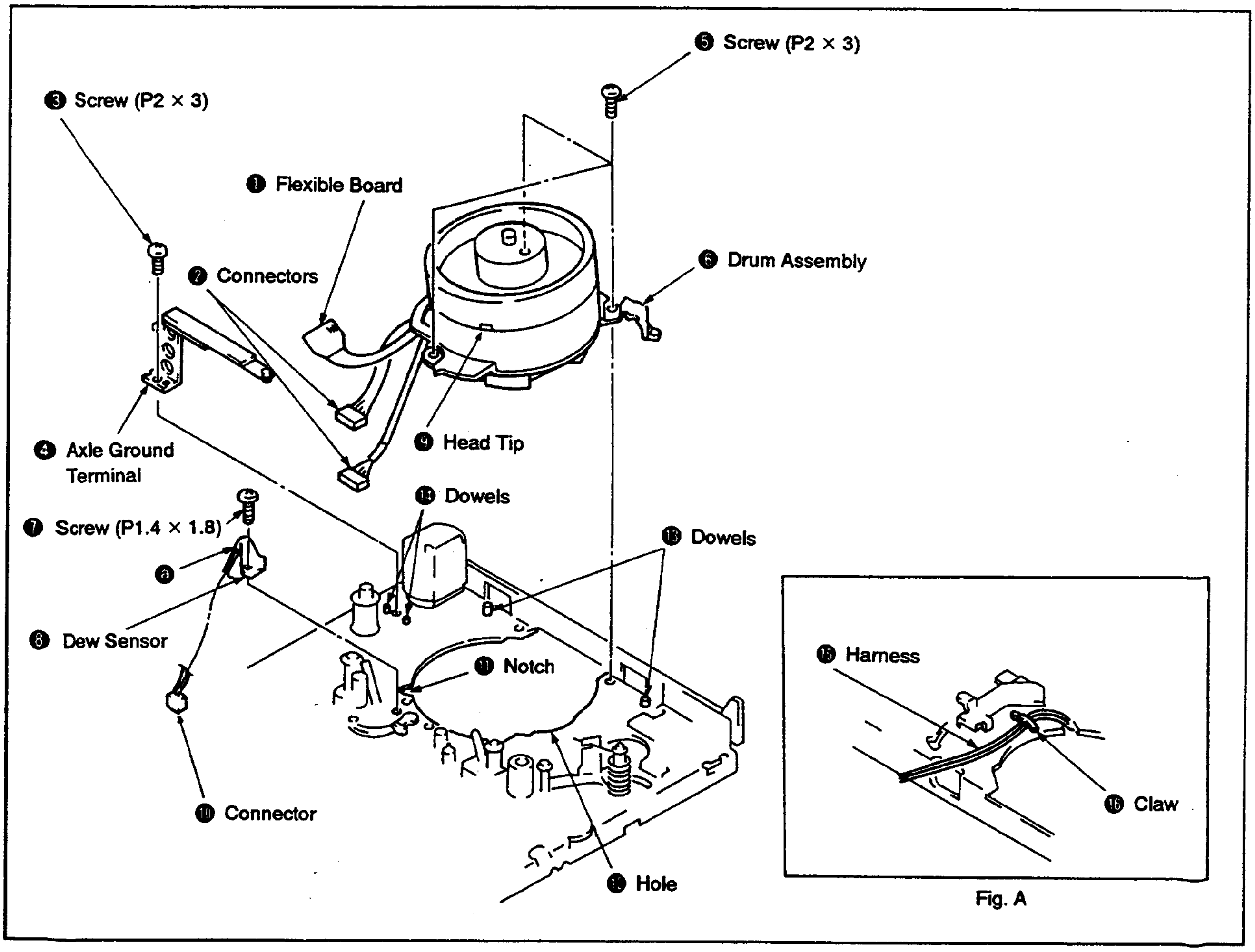

❺ Screw (P2 × 3)
❸ Screw (P2 × 3)
❶ Flexible Board
❷ Connectors
❻ Drum Assembly
❹ Axle Ground Terminal
❾ Head Tip
⓮ Dowels
❼ Screw (P1.4 × 1.8)
⓭ Dowels
ⓐ
❽ Dew Sensor
⓫ Notch
❿ Connector
⓬ Hole
⓯ Harness
⓰ Claw
Fig. A

Fig. 3-14.

3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

1. Removal (See Fig. 3-15.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Set the STOP mode.
3) Remove the claw ❶, then remove the eject lever ❷.
4) Remove the stopper washer ❸, then remove the switch lever assembly ❹.
5) Remove the pinch roller load spring ❺.
6) Remove the stopper washer ❻, then remove the pinch roller sub arm assembly ❼.

2. Installation (See Fig. 3-15.)

1) Grease the axle ❽ (See Fig. A).
2) Assemble by inserting ⓐ part of the pinch roller sub arm assembly ❼ into the slot ❾, then insert the pin ❿ into the loading lever assembly notch ⓫.
3) Secure with the stopper washer ❻.
4) Mount the pinch roller load spring ❺ by catching its ⓑ end between the claw ⓬ and the chassis side and its ⓒ end to the claw ⓬.
5) Apply half a drop of oil to the axle ⓭ (See Fig. B).
6) Align the groove ⓮ of the switch lever assembly ❹ with the mode detector switch protrusion ⓯, mount it on the axle ⓭, then insert the pin ⓰ into the drive gear (left) assembly ⓱ outer groove.
7) Secure with the stopper washer ❸.
8) Mount the eject lever ❷ and close the claw ❶.
9) Mount the DC motor (capstan motor) as described in section 3-3.

Note: When mounting the switch lever assembly ❹ onto the axle ⓭ with the tension regulator arm assembly installed, set the pin ⓰ to the arrow Ⓐ side of the switch lever assembly ❹.

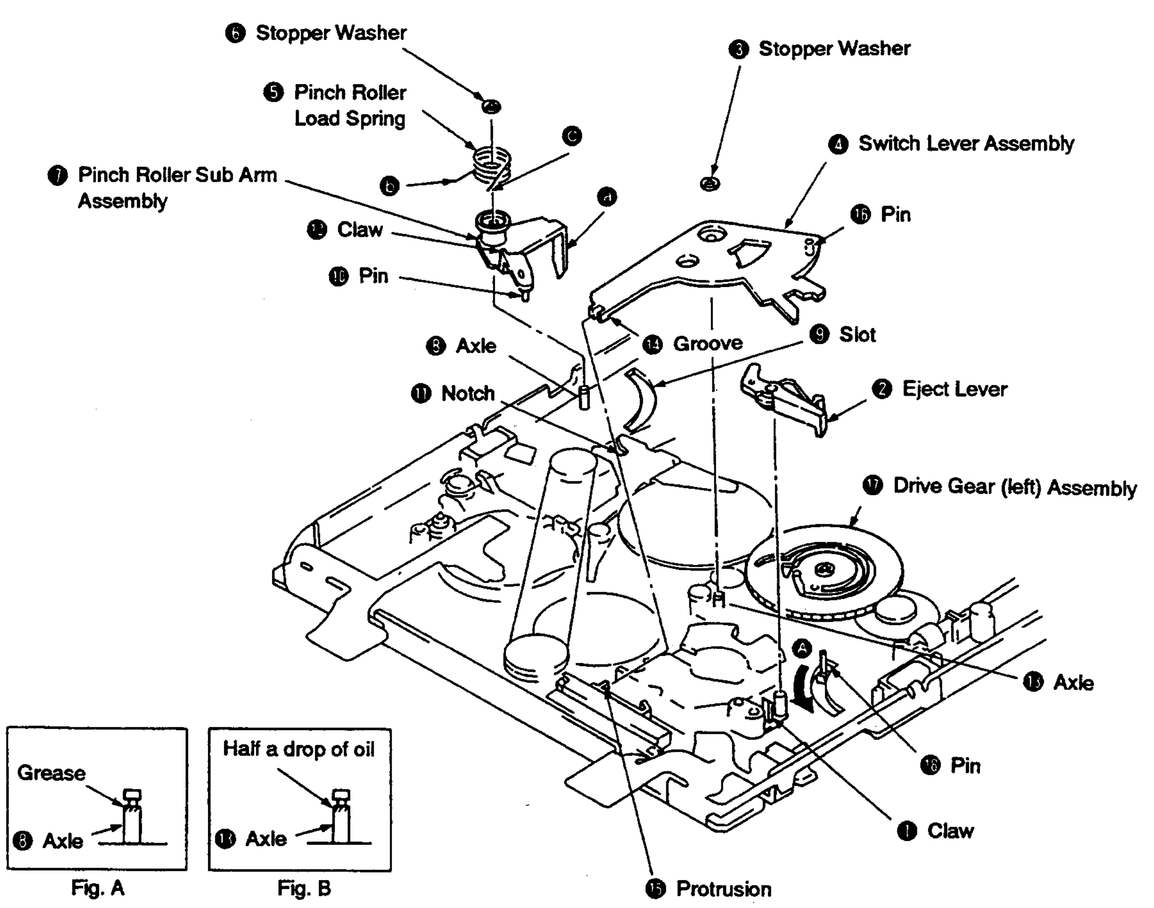

❻ Stopper Washer
❺ Pinch Roller Load Spring
❼ Pinch Roller Sub Arm Assembly
ⓑ
ⓒ
ⓐ
⓬ Claw
❿ Pin
❽ Axle
⓫ Notch
❸ Stopper Washer
❹ Switch Lever Assembly
⓰ Pin
⓮ Groove
❾ Slot
❷ Eject Lever
⓱ Drive Gear (left) Assembly
Ⓐ
⓭ Axle
⓰ Pin
❶ Claw
⓯ Protrusion
Grease
❽ Axle
Half a drop of oil
⓭ Axle

Fig. A

Fig. B

Fig. 3-15.

3-15. TIMING BELT (L) , RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S), CONNECTING GEAR ASSEMBLY

1. Removal (See Fig. 3-16.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the pinch roller sub arm assembly as described in section 3-14.
3) Set the STOP mode.
4) Remove the stopper washer ❶ , then remove the RC gear assembly ❷ from the axle ❹ with the timing belt (L) ❸ attached.
5) Remove the timing belt (L) ❸ from the idler pulley assembly ❺.
6) Remove the stopper washer ❻ and remove the loading lever assembly ❽ while pushing the claw ❼ in the direction of the arrow 🅐.
7) Turn the stopper ❾ approx. 90 ° in the direction of the arrow 🅑.
8) Remove the connecting gear assembly ⓫ from the axle ⓰ with the timing belt (S) ❿ attached.
9) Remove the timing belt (S) ❿ from the idler pulley assembly ❺.

Note: When removing the connecting gear ⓫ , take care not touch the flange section ⓑ.

2. Installation (See Fig. 3-16.)

1) Apply half a drop of oil to the axle ⓰ (See Fig. F).
2) Hook one end of the timing belt (S) ❿ onto the connecting gear assembly ⓫ and the other end onto gear ⓓ of the idler pulley assembly ❺. (Refer to the figure.)
3) Mount the connecting gear assembly ⓫ with the timing belt (S) ❿ attached to the axle ⓰.
4) Turn the stopper ❾ in the direction of the arrow 🅒 as far as it will go.
5) Apply half a drop of oil to the axle ⓬ (See Fig. A).
6) Fit the loading lever assembly ❽ to the axle ⓬, secure the ⓐ part with the claw ❼ and place the pin ⓭ into the groove of the drive gear (right) assembly ⓮.
7) Install the stopper washer ❻.
8) Place the timing belt (L) ❸ around the gears of the RC gear assembly ❷ indicated in Fig. B, and its opposite side around the gear Ⓒ of the idler pulley assembly ❺. (See Fig. E.)
9) Mount the RC gear assembly ❷ onto the axle ❹ with the timing belt (L) ❸ attached, and engage it with the gear of the RK gear assembly ⓯.
10) Install the stopper washer ❶.
11) Grease parts of the loading lever assembly ❽ indicated in Fig. C.
12) Mount the pinch roller sub arm assembly as described in section 3-14.
13) Mount the DC motor (capstan motor) as described in section 3-3.

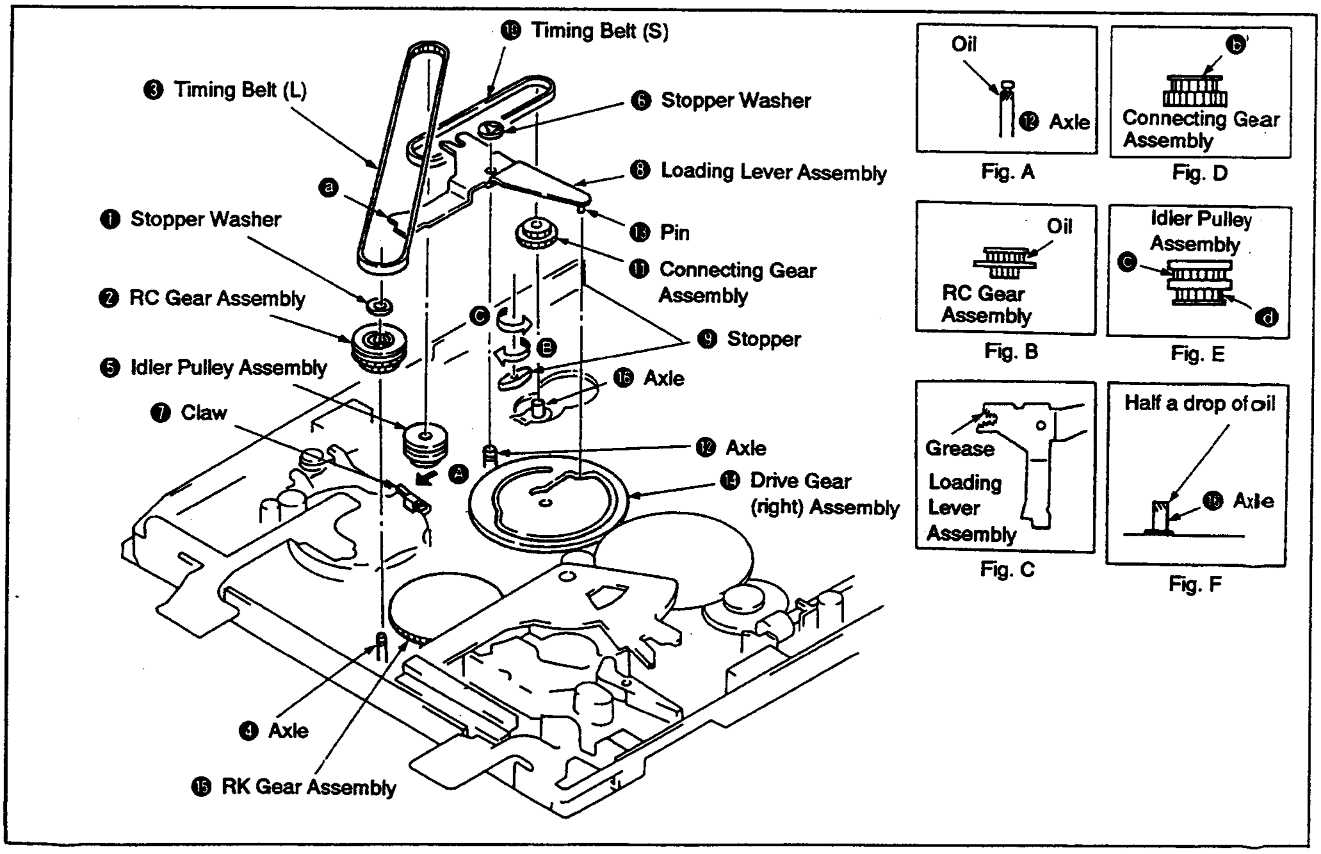

❿ Timing Belt (S)
❸ Timing Belt (L)
❻ Stopper Washer
❽ Loading Lever Assembly
ⓐ
❶ Stopper Washer
⓭ Pin
⓫ Connecting Gear Assembly
❷ RC Gear Assembly
Ⓒ
Ⓑ
❾ Stopper
❺ Idler Pulley Assembly
⓰ Axle
❼ Claw
⓬ Axle
🅐
⓮ Drive Gear (right) Assembly
❹ Axle
⓯ RK Gear Assembly
Oil
⓬ Axle
Fig. A
ⓑ'
Connecting Gear Assembly
Fig. D
Oil
RC Gear Assembly
Fig. B
Idler Pulley Assembly
Ⓒ
ⓓ
Fig. E
Grease
Loading Lever Assembly
Fig. C
Half a drop of oil
⓰ Axle
Fig. F

Fig. 3-16.

3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

1. Removal (See Fig. 3-17.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in section 3-15.
4) Set the STOP mode.
5) Remove the stopper washer ❶, then remove the idler pulley ❷.
6) Open the claw ❸, then remove the TS brake assembly ❹.
7) Remove the torsion coil spring (LB) ❺.
8) Remove the stopper washer ❻, then remove the LB gear assembly ❼.
9) Remove the RK gear assembly ❽.

Note: When removing the idler pulley ❷, take care not to touch the flange section ⓐ. (See Fig. C.)

2. Installation (See Fig. 3-17.)

1) Apply half a drop of oil to the axle ❾ (See Fig. A).
2) Mount the RK gear assembly ❽ onto the axle ❾, keeping it in horizontal position.
3) Apply half a drop of oil to the axle ❿ (See Fig. B).
4) Mount the LB gear assembly ❼ onto the axle ❿ and secure it with the stopper washer ❻.
5) Insert the torsion coil spring (LB) ❺ into the axle ⓫, then hook it to the mechanism chassis notch ⓬ and to the tab ⓭.
6) Mount the TS brake assembly ❹ and close the claw ❸.
7) Apply half a drop of oil to the axle ⓰ (See Fig. D).
8) Mount the idler pulley ❷ onto the axle ⓰, then secure it with the stopper washer ❶.
9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in section 3-15.
10) Mount the switch lever assembly as described in section 3-14.
11) Mount the DC motor (capstan motor) as described in section 3-3.

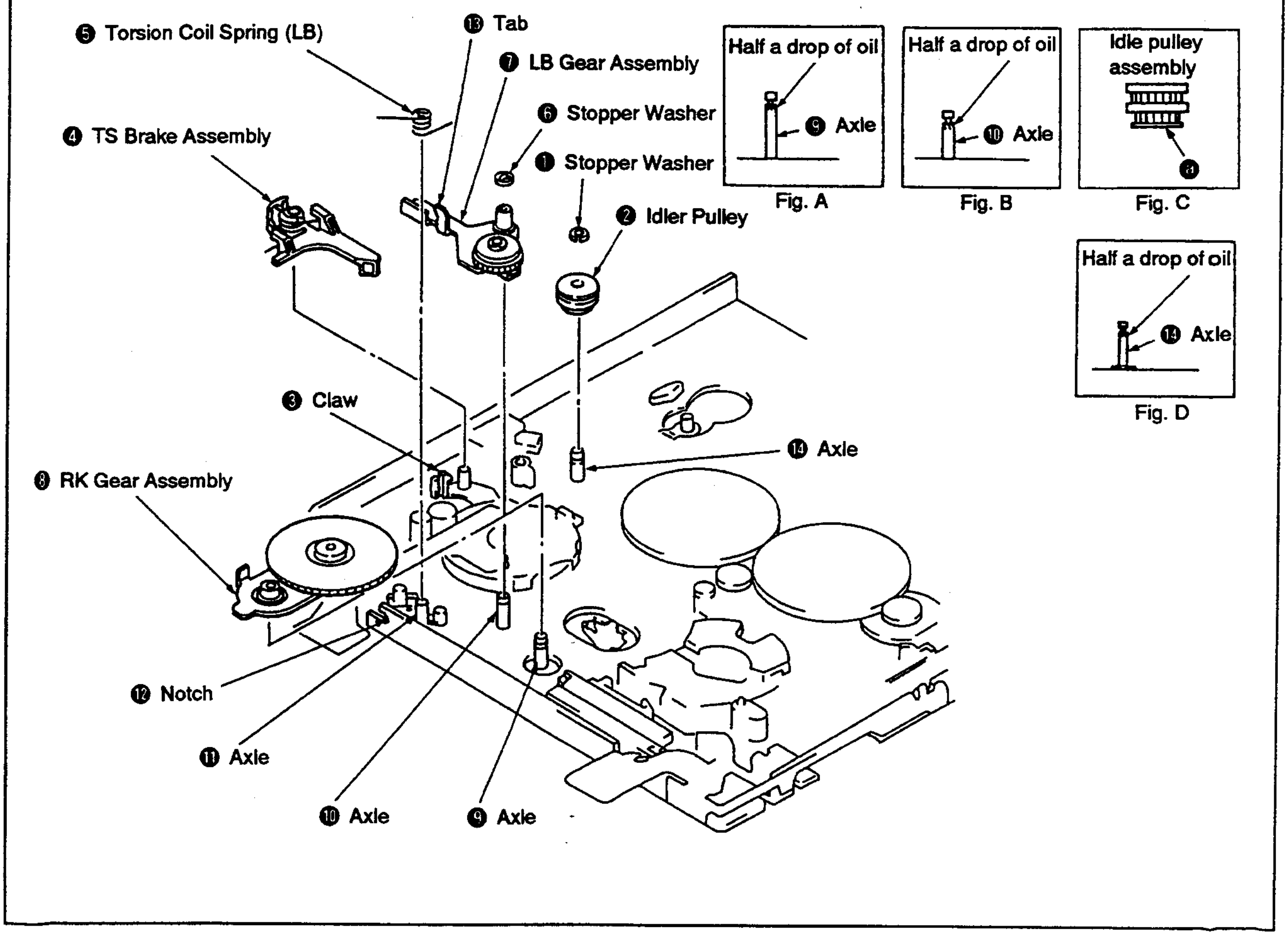

❺ Torsion Coil Spring (LB)
⓭ Tab
❼ LB Gear Assembly
❻ Stopper Washer
❶ Stopper Washer
❹ TS Brake Assembly
❷ Idler Pulley
❸ Claw
⓮ Axle
❽ RK Gear Assembly
⓬ Notch
⓫ Axle
❿ Axle
❾ Axle
Half a drop of oil
❾ Axle
Half a drop of oil
❿ Axle
Idle pulley assembly
ⓐ
Half a drop of oil
⓮ Axle

Fig. A

Fig. B

Fig. C

Fig. D

Fig. 3-17.

3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

1. Removal (See Fig. 3-18.)

1) Remove the switch lever assembly as described in section 3-14.
2) Remove the stopper washer ❶, then remove the UL gear ❷.
3) Remove the UL arm ❸, the 1.6 mm-diameter poly washer ❹ and the LB plate spring ❺.
4) Remove the UL brake ❻.

2. Installation (See Fig. 3-18.)

1) Mount the UL brake ❻.
2) Apply half a drop of oil to the axle ❼ (See Fig. A).
3) Mount the LB plate spring ❺ to the axle ❼ as shown in Fig. B, then install the 1.6mm-diameter poly washer ❹.
4) Mount the UL arm ❸ to the axle ❼ so that the protrusion ❽ comes into the groove ❾ of the UL brake ❻.
5) Mount the UL gear ❷ to the axle ❼ and engage it with the gear of the drive gear (left) assembly ❿.
6) Install the stopper washer ❶.
7) Mount the switch lever assembly as described in section 3-14.

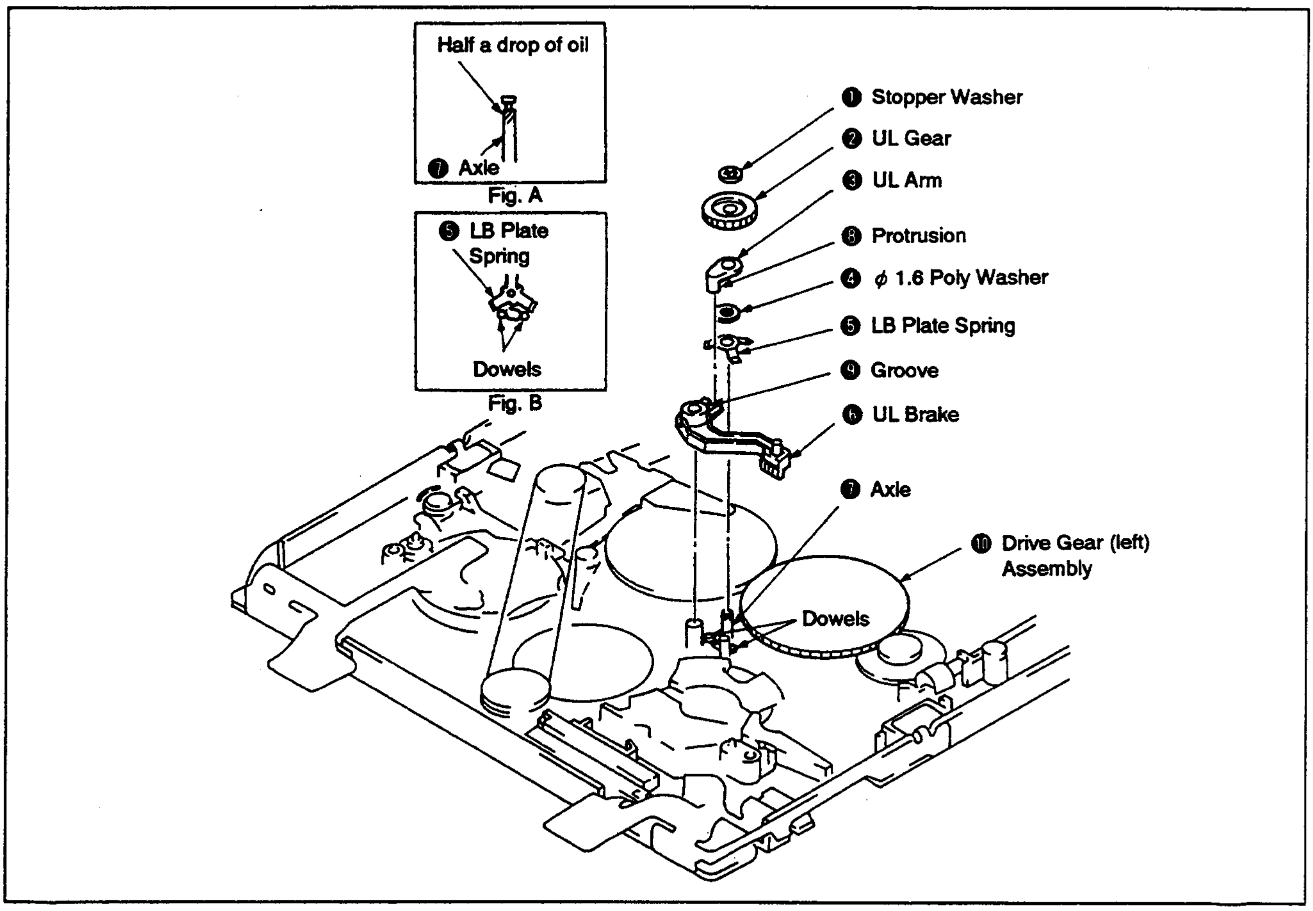

Half a drop of oil
❼ Axle
Fig. A
❺ LB Plate Spring
Dowels
Fig. B
❶ Stopper Washer
❷ UL Gear
❸ UL Arm
❽ Protrusion
❹ ϕ 1.6 Poly Washer
❺ LB Plate Spring
❾ Groove
❻ UL Brake
❼ Axle
❿ Drive Gear (left) Assembly
Dowels

Fig. 3-18.

3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

1. Removal (See Fig. 3-19.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum unit as described in section 3-13.
3) Remove the switch lever assembly as described in section 3-14.
4) Remove the timing belt (L) , the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Set the `STOP` mode.
6) Remove the screw ❶ , then remove the coaster plate spring ❷ and the coaster (right) assembly ❸ .
7) Remove the two screws ❹ , then remove the reinforcing plate TT ❺ .
8) Remove the stopper washer 1.5 ❻ , then remove the drive gear (right) assembly ❼ .

2. Installation (See Fig. 3-19.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. F).
3) Grease pin ❾ , axle ❿ and dowel ⓮ of the coaster (right) assembly ❸ (See Fig. D).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Move the brake release arm ⓬ in the direction of the arrow 🅐 to put it out of the way.
6) Mount the drive gear (right) assembly ❼ to the axle ❽ , and engage it with the drive gear (left) assembly ⓭ as shown in Fig. B.
7) Align the ⓐ part with the ⓑ part, and the hole ⓮ with the pin ❾ of the coaster (right) assembly ❸ .
8) Install the stopper washer 1.5 ❻ .
9) Mount by aligning the coaster plate spring ❷ with the axle ❿ of the coaster (right) assembly ❸ and pin ❾ , then secure with the screw ❶ .
10) Mount the reinforcing plate TT ❺ aligning it with the dowel ⓯ , then tighten the two screws ❹ in the indicated order.
11) Grease the points indicated in Figs. C and E.
12) Mount the timing belt (L) , the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly as described in section 3-14.
14) Mount the drum unit as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

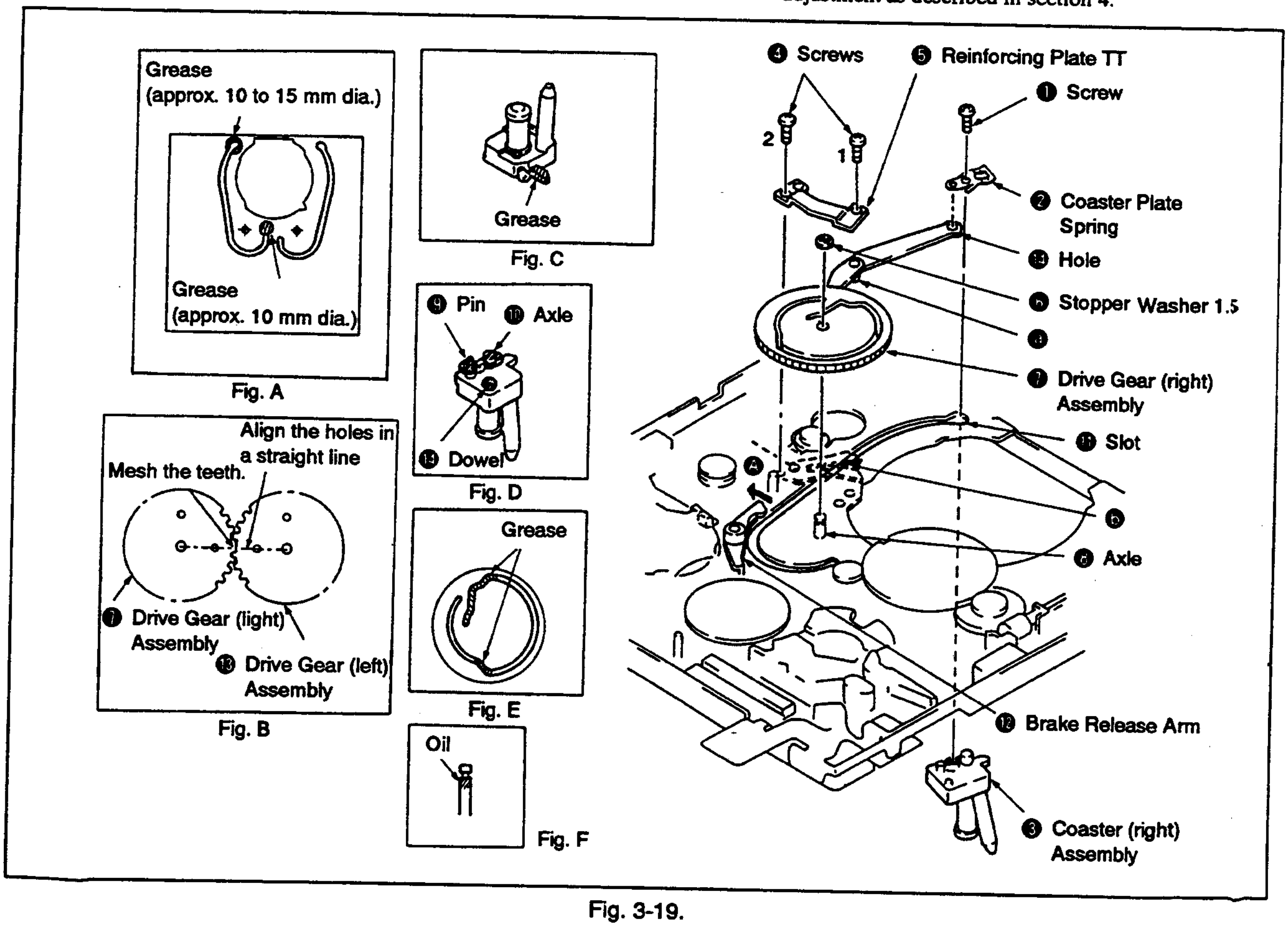

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)
Fig. A
Grease
Fig. C
❾ Pin
❿ Axle
⓮ Dowel
Fig. D
Align the holes in a straight line
Mesh the teeth.
❼ Drive Gear (light) Assembly
⓭ Drive Gear (left) Assembly
Fig. B
Grease
Fig. E
Oil
Fig. F
❹ Screws
❺ Reinforcing Plate TT
2
1
❶ Screw
❷ Coaster Plate Spring
⓮ Hole
❻ Stopper Washer 1.5
ⓐ
❼ Drive Gear (right) Assembly
⓫ Slot
🅐
ⓑ
❽ Axle
⓬ Brake Release Arm
❸ Coaster (right) Assembly

Fig. 3-19.

3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

1. Removal (See Fig. 3-20.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum assembly as described in section 3-13.
3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in section 3-14.
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Remove the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (left) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate SS assembly ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (left) assembly ❼.

2. Installation (See Fig. 3-20.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. E).
3) Grease pin ❾, axle ❿ and dowel ⓯ of the coaster (left) assembly ❸ (See Fig. B).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Fit the drive gear (left) assembly ❼ to the axle ❽, and mount so that the gear engages with the wheel gear ⓬ and the UL gear ⓭.
6) Align the ⓐ part with the slot ⓫, and the hole ⓮ with the pin ❾ of the coaster (left) assembly ❸.
7) Install the stopper washer 1.5 ❻.
8) Mount by aligning the coaster plate spring ❷ with the axle ❿ and pin ❾ of the coaster (left) assembly ❸, then secure with the screw ❶.
9) Mount the reinforcing plate SS assembly ❺ aligning it with the dowel ⓯, then tighten the two screws ❹ in the indicated order.
10) Grease points indicated in Figs. C and D.
11) Mount the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
14) Mount the drum assembly as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

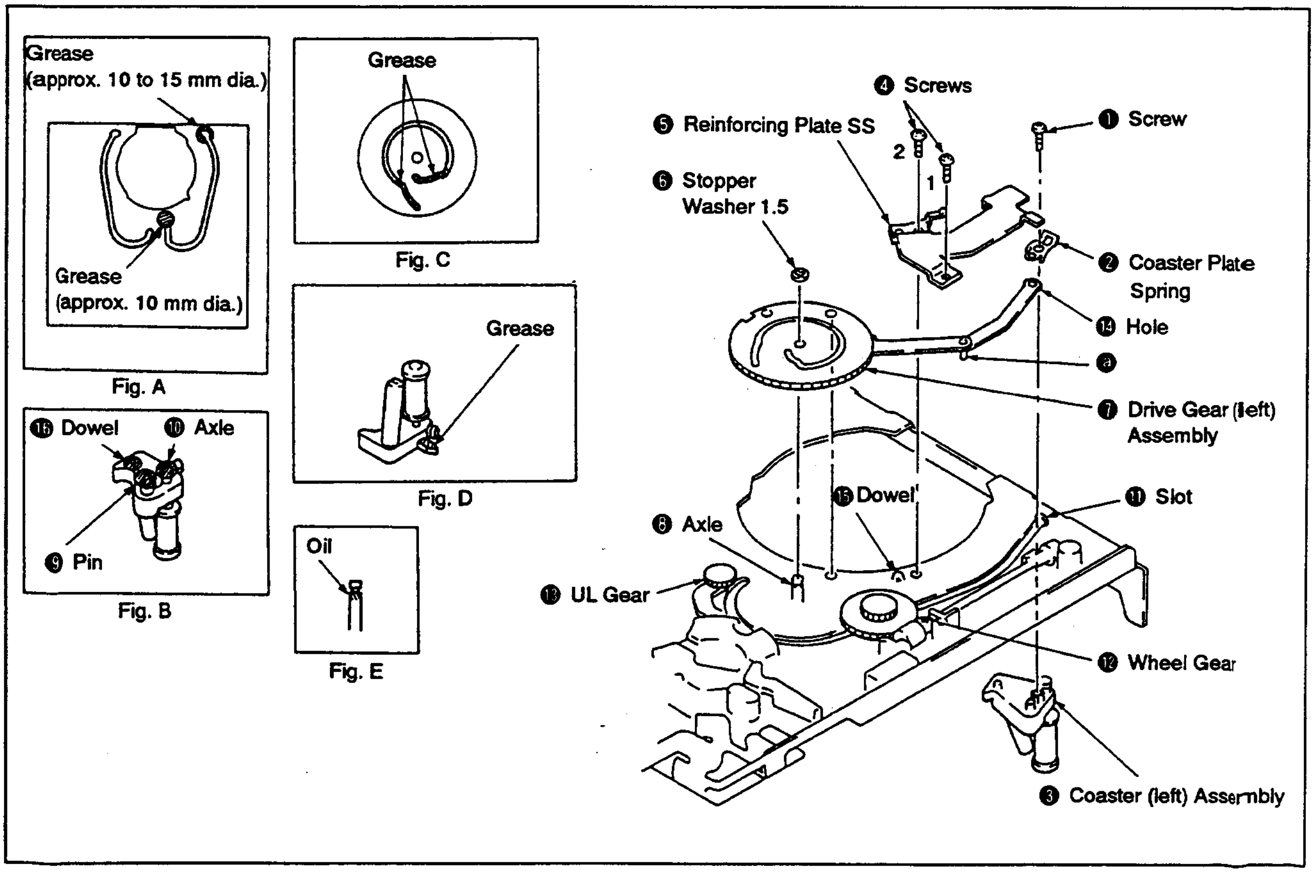

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)
Fig. A
⓯ Dowel
❿ Axle
❾ Pin
Fig. B
Grease
Fig. C
Grease
Fig. D
Oil
Fig. E
❹ Screws
❺ Reinforcing Plate SS
2
1
❶ Screw
❻ Stopper Washer 1.5
❷ Coaster Plate Spring
⓮ Hole
ⓐ
❼ Drive Gear (left) Assembly
⓯ Dowel
⓫ Slot
❽ Axle
⓭ UL Gear
⓬ Wheel Gear
❸ Coaster (left) Assembly

Fig. 3-20.

3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

1. Removal (See Fig. 3-21.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
4) Remove the drive gear (right) assembly as described in section 3-18.
5) Remove the drive gear (left) assembly as described in section 3-19.
6) Remove the two screws ❶, then remove the loading motor assembly ❷.
7) Remove the brake release arm ❸.
8) Remove the stopper washer ❹, then remove the wheel gear ❺.
9) Remove the worm assembly ❻ from the six claws ❼.

2. Installation (See Fig. 3-21.)

1) Mount the worm assembly ❻, matching it to the six claws ❼.
2) Grease the shaded parts of the worm assembly ❻ (five places) (see Fig A).
3) Apply half a drop of oil to the axle ❽ (See Fig. B).
4) Fit the wheel gear ❺ to the axle ❽ and engage it with the gear of the worm assembly ❻.
5) Mount the brake release arm ❸.
6) Grease the whole perimeter of the gear of the loading motor assembly ❷.
7) Align the loading motor assembly ❷ with the mechanism chassis and secure it with the two screws ❷.
8) Mount the drive gear (left) assembly as described in section 3-19.
9) Mount the drive gear (right) assembly as described in section 3-18.
10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
12) Mount the DC motor (capstan motor) as described in section 3-3.

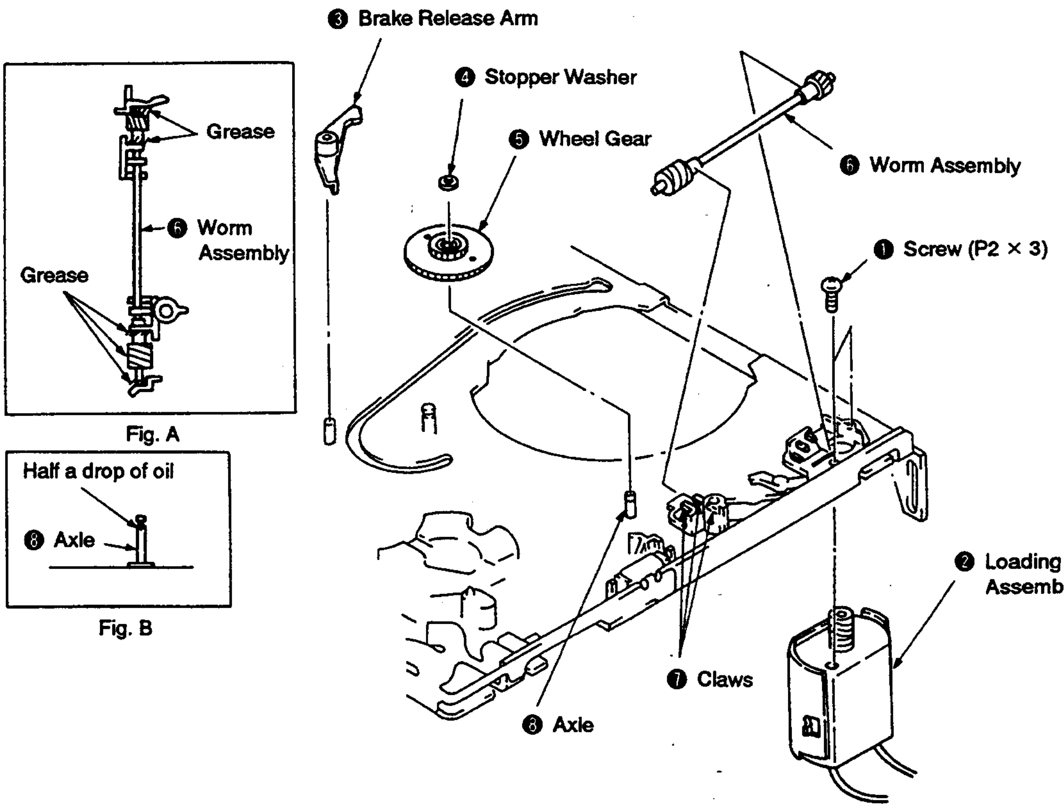

Grease
❻ Worm Assembly
Grease
Fig. A
Half a drop of oil
❽ Axle
Fig. B
❸ Brake Release Arm
❹ Stopper Washer
❺ Wheel Gear
❻ Worm Assembly
❶ Screw (P2 × 3)
❷ Loading Motor Assembly
❼ Claws
❽ Axle

Fig. 3-21.

3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removal

- If possible, make a recording before removal.

1) Detach the six solderings ❽, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
2) Remove the two screws ❶ (See Fig. 3-22).
3) Mount the jig ❹ (Ref. No. J-7) with the two supplied screws ❷, then screw the attached hexagon socket screws ❸ to the jig ❹. The rotary upper drum ❺ will move upward and come off (See Fig. 3-23).

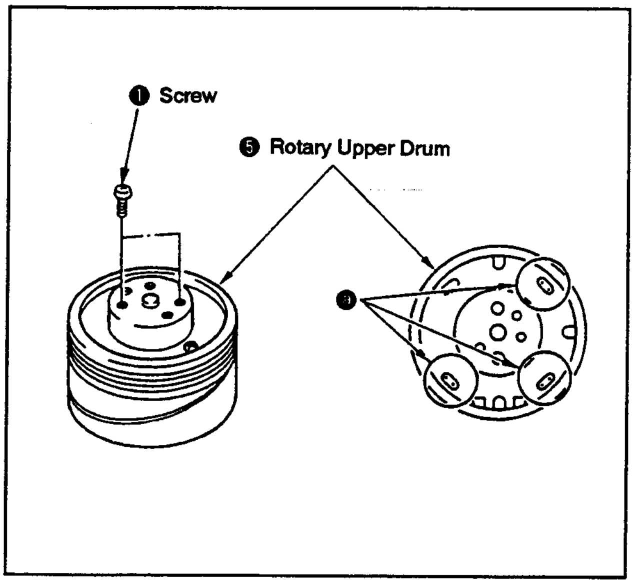


Fig. 3-22.

2. Installation

1) Wipe clean the flange surface and the rotary upper drum ❺ surface that makes contact with it, and confirm that they are free from dirt and scratches.
2) Insert the jig ❼ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ❺ by passing the jig through its positioning hole ❻.
   Note: Confirm that the terminals ❽ protrude slightly from the rotary upper drum board holes (See Fig. 3-24).
3) Remove the jig ❼ and push down the rotary upper drum ❺ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ❶ alternately.
4) Insert the jig ❼ into the positioning hole ❻ again and confirm that it goes in smoothly. If it does not, loosen the two screws ❶, repeat step 3 of the Removal paragraph and restart the setting procedure.
5) Tighten the screws ❶.
6) Solder the terminals ❽ (❽ in Fig. 3-22).
   Note: Take care that no solder flows below the board.

Note: After installing, be sure to perform tape path adjustment as described in section 4.

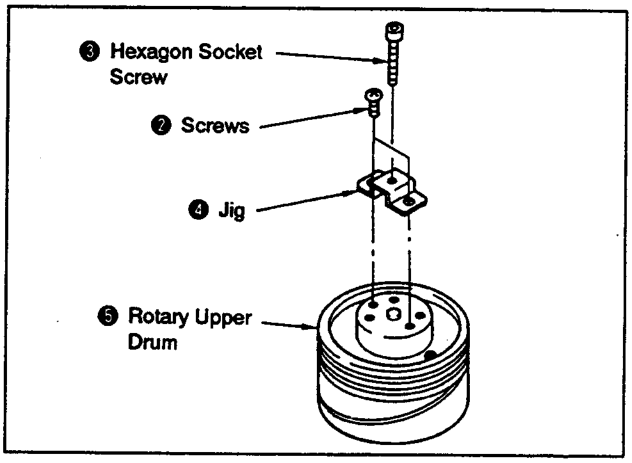


Fig. 3-23.

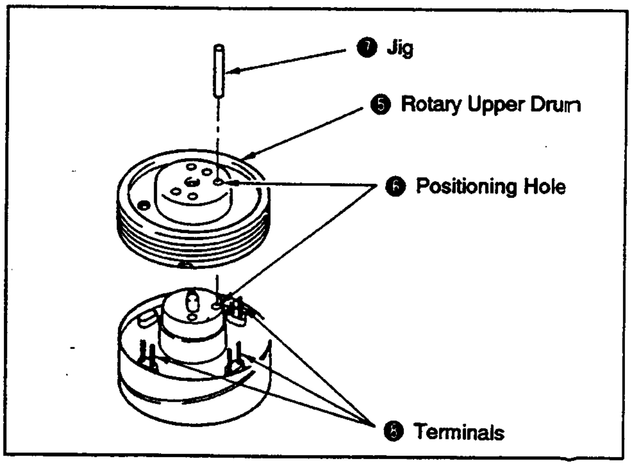


Fig. 3-24.

3-22. FWD BACK TENSION (See Fig. 3-25.)

1) Set the torque cassette (Ref. No. J-6).
2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g•cm.
3) If the torque value does not meet the specification, adjust the adjust arm ❶.

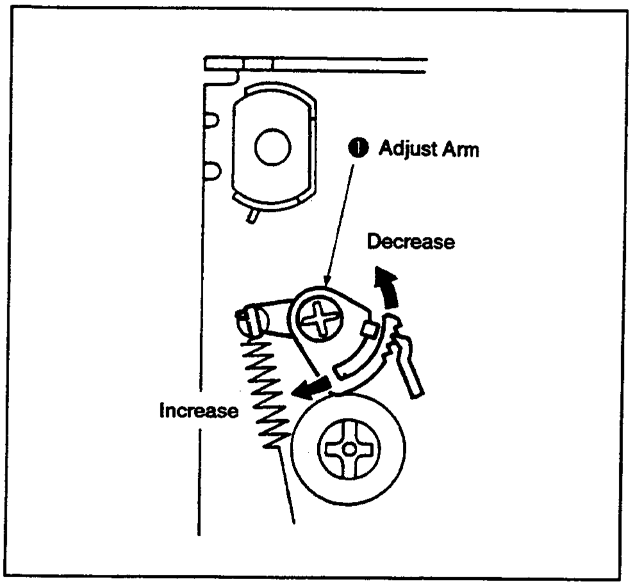


Fig. 3-25.

3-23. REEL TORQUE CHECK

1) Set the torque cassette.
2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g•cm.
3) Set the REV mode and confirm that S reel table torque value is within 29 ± 6 g•cm.
4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g•cm.
5) If a torque value does not meet the specifications above, replace the corresponding reel table.

4. TAPE PATH ADJUSTMENT

[The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

4-1. TRACK SHIFT MODE SETTING

[Setting Procedure]

- Connect the TEST A and TEST B terminals to the COM terminal.

  Example:

  NTSC ········ GV-8

  PAL ·········· GV-8E

  Connect Pins ① and pin ③ of CN017 on the {SV-34 board (GV-8) / SV-35 board (GV-8E)} to pin ② of it. (See Fig. 4-1)

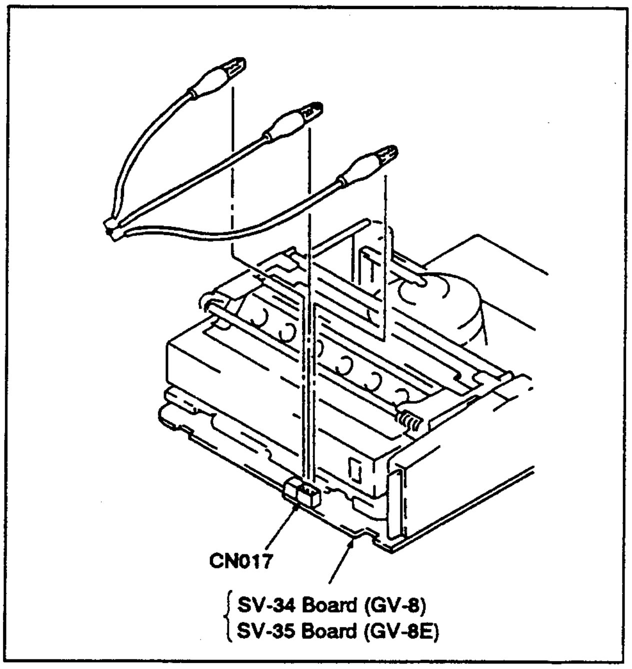
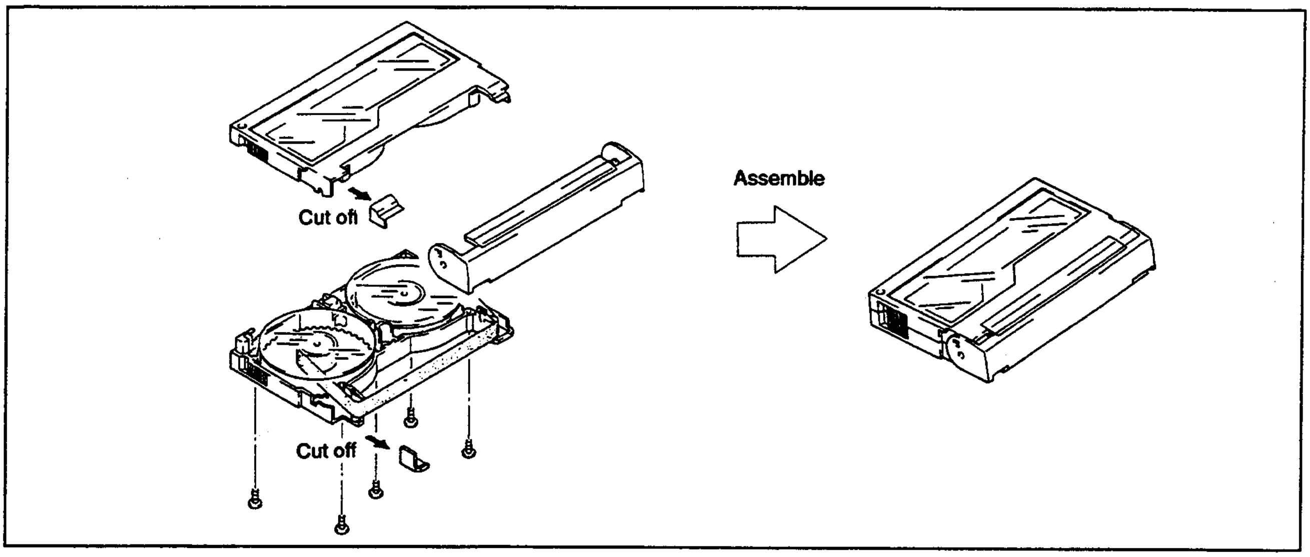


Fig. 4-1.

[Note on Adjustment of No.7 Guide (TG-7)]

The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig. 4-2).
Therefore, when performing section 4-6. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.


Cut off
Cut off
Assemble

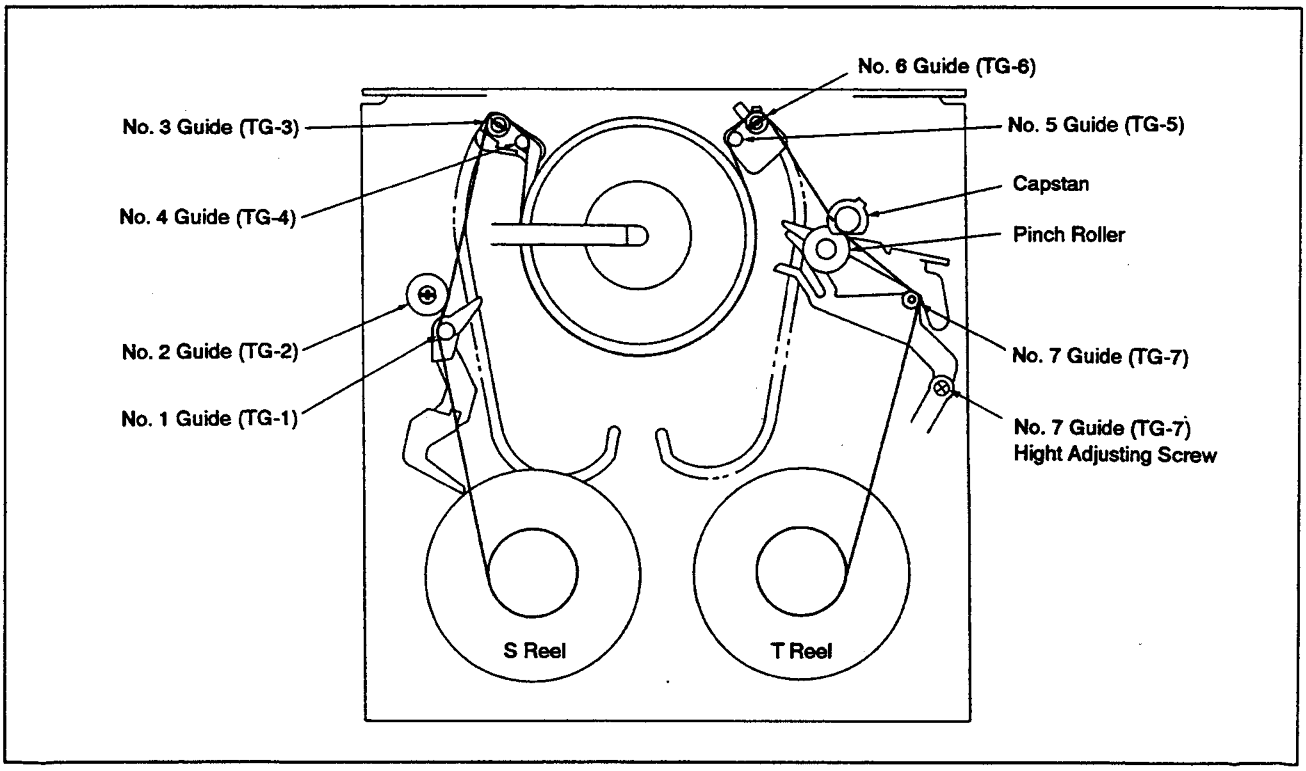

No. 6 Guide (TG-6)
No. 3 Guide (TG-3)
No. 5 Guide (TG-5)
Capstan
No. 4 Guide (TG-4)
Pinch Roller
No. 2 Guide (TG-2)
No. 7 Guide (TG-7)
No. 1 Guide (TG-1)
No. 7 Guide (TG-7)
Hight Adjusting Screw
S Reel
T Reel

Fig. 4-2.

4-2. PREPARATIONS FOR ADJUSTMENT

1) Clean tape path surfaces (tape guides, drum, capstan shaft, pinch roller) (See Fig. 4-2).
2) Connection of oscilloscope and output method of waveform.
   CH 1: RF signal output of the drum head (V RF OUT)
   Method for signal output:
   Short-circuit the external trigger output (RF SW. P) and GND.

   Example:
   NTSC ····· GV-8
   PAL ······· GV-8E
   CH 1: Pin ③ (V RF OUT) of CN018 on the
   { SV-34 board (GV-8)
   { SV-35 board (GV-8E)
   Method for signal output:
   Short-circuit pin ① (GND) and pin ② (RF SW.P) of CN018 on the
   { SV-34 board (GV-8)
   { SV-35 board (GV-8E)
3) Play back the alignment tape for tracking adjustment (Ref. No. J-5).
4) Confirm that both the entrance and exit side RF waveforms of the oscilloscope are flat (See Fig. 4-4). If they are not, adjust as follows.

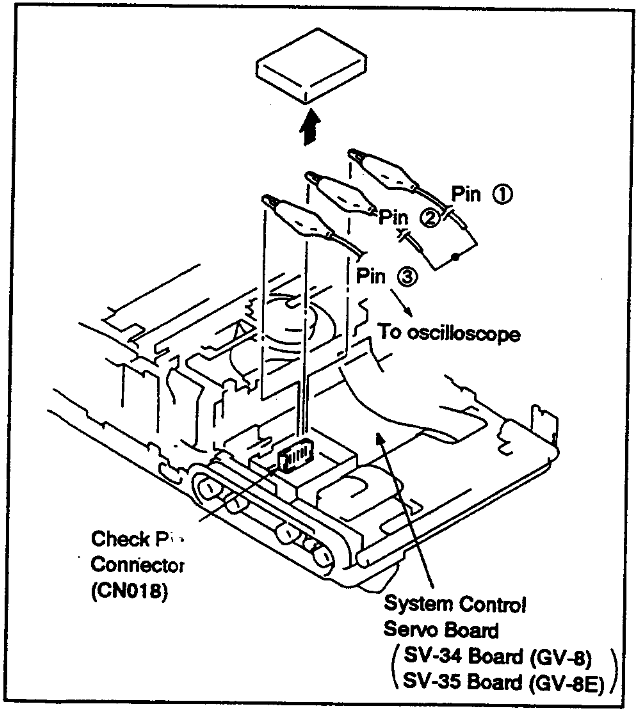

Pin ①
Pin ②
Pin ③
To oscilloscope
Check Pin Connector (CN018)
System Control Servo Board
SV-34 Board (GV-8)
SV-35 Board (GV-8E)

Fig. 4-3.

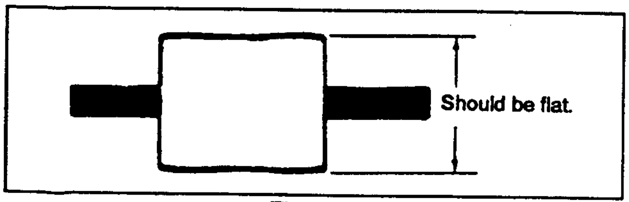

Should be flat.

Fig. 4-4.

4-3. TRACKING ADJUSTMENT (See Fig. 4-5.)

1) Play back the alignment tape for tracking adjustment.
2) Pass a hexagonal wrench, screwdriver (Ref. No. J-11) or the like through the hole ❶, loosen the lockscrew ❷ a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ❸.
3) Pass a hexagonal wrench, screwdriver or the like through the hole ❹, loosen the lockscrew ❺ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ❻.

Note: Take care not to loosen lockscrews too much, since guides come loose easily.

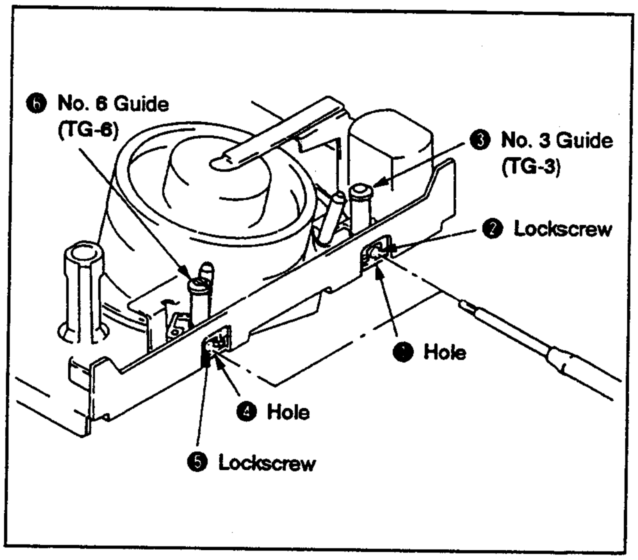

❻ No. 6 Guide (TG-6)
❸ No. 3 Guide (TG-3)
❷ Lockscrew
❶ Hole
❹ Hole
❺ Lockscrew

Fig. 4-5.

4-4. TRACKING FINE ADJUSTMENT (See Figs. 4-5. and 4-6.)

1) Play back the alignment tape for tracking adjustment and set the track shift mode.
2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
3) Fix the No. 3 guide ❸ by tightening its lockscrew ❷ . Then confirm that the entrance side waveform has not changed.
4) Fix the No. 6 guide ❻ by tightening its lockscrew ❺ . Then confirm that the exit side waveform has not changed.

Note: The set screws ❷ and ❺ should be tightened with a tightening torgue of approx. 200g•cm ± 10%.
If tightened too much, there is danger of damaging the thread.

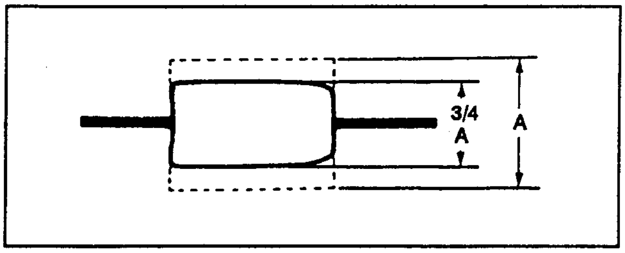


Fig. 4-6.

4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 4-7.)

1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by rotating the TG-2 upper flange ❶ .

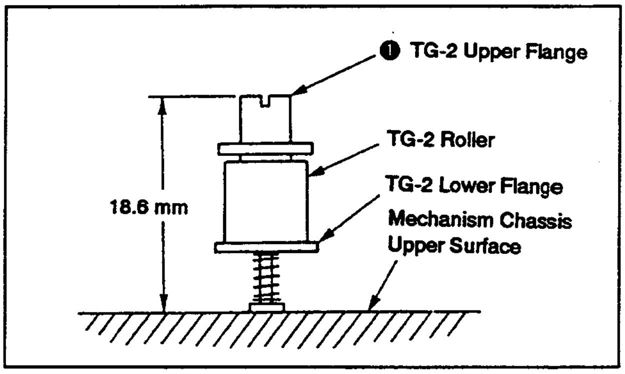


Fig. 4-7.

[Reference]
This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7) . To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 4-8. and 4-9.)

1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
2) Confirm that the tape is not bent at the lower flange ❷ of the No. 2 guide (TG-2) ❶ (See Fig. 4-8). If it is, turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ clockwise with a screwdriver, lowering it until the tape is straightened.
3) Play back the alignment tape for tracking adjustment.
4) Perform tracking adjustment and tracking fine adjustment as described in sections 4-3. and 4-4.
5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
6) If the waveform is not normal (See Fig. 4-9), turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ 90° counter-clockwise and repeat step 5.
   Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

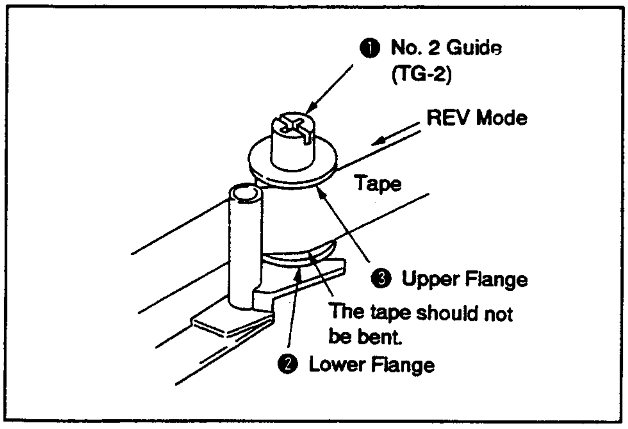

❶ No. 2 Guide (TG-2)
REV Mode
Tape
❸ Upper Flange
The tape should not be bent.
❷ Lower Flange

Fig. 4-8.

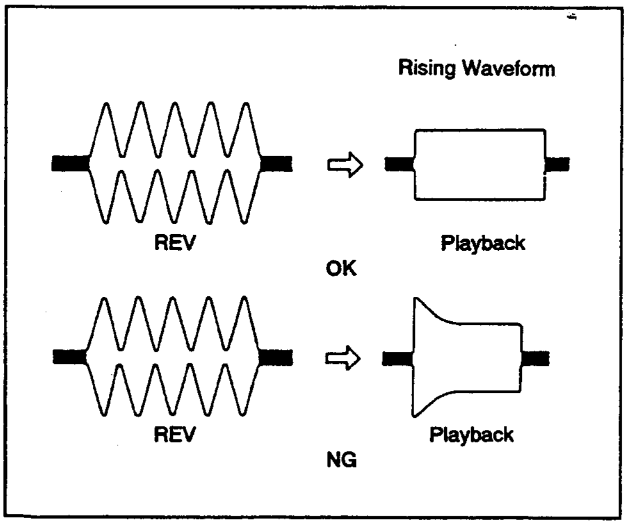

Rising Waveform
REV
Playback
OK
REV
Playback
NG

Fig. 4-9.

4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 4-10.)

1) Play back the alignment tape for tracking adjustment and set the REV mode.
2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ❶ and the capstan ❷ . If it is, turn the hight adjusting screw ❹ of the No. 7 guide (TG-7) ❸ until the tape is straightened.
3) Set the playback mode again and confirm that the tape is not bent between the capstan ❷ and the hight adjusting screw ❹ of the No. 7 guide (specification:0.5 mm or less) . If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ❸ until bending is within the specification (0.5 mm).
   If in the REV mode tape bending between the No. 6 guide (TG-6) ❶ and the capstan ❷ is 0.3 mm or less, adjustment can be considered completed.

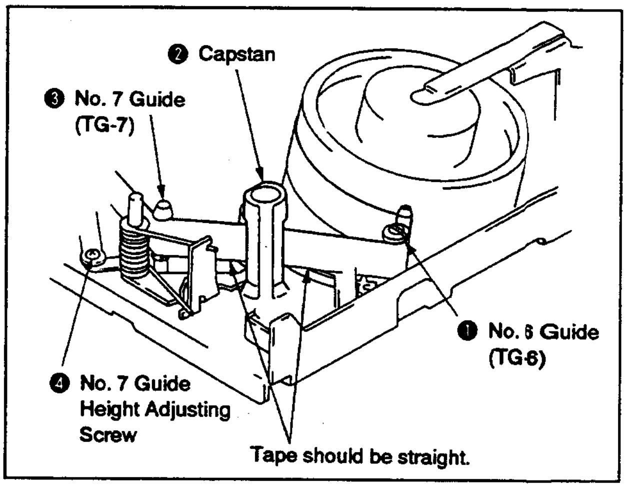

❷ Capstan
❸ No. 7 Guide (TG-7)
❶ No. 6 Guide (TG-6)
❹ No. 7 Guide Height Adjusting Screw
Tape should be straight.

Fig. 4-10.

4-7. CUE AND REV WAVEFORM CHECK (See Fig. 4-11.)

1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 4-11). In case pitch is not constant, perform section 4-4. Tracking Fine Adjustment and section 4-6. No. 7 Guide Adjustment.
2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 4-11). Otherwise, perform section 4-4. Tracking Fine Adjustment.

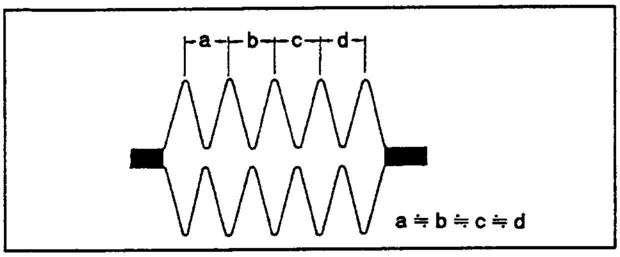


Fig. 4-11.

4-8. CHECK AFTER ADJUSTMENT

4-8-1. Tracking Check

1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 4-12).
2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 4-13).
3) Confirm that no large fluctuations occur on the waveform (See Fig. 4-14).

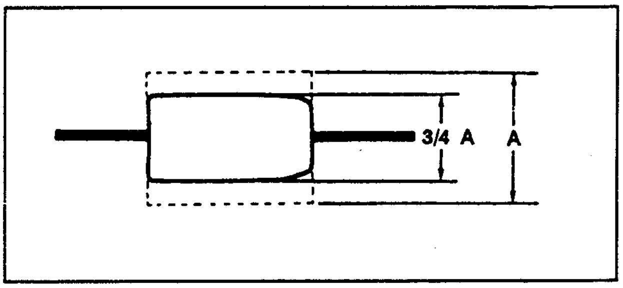


Fig. 4-12.

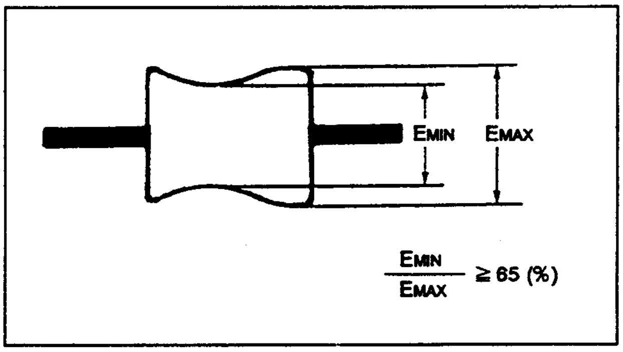


Fig. 4-13.

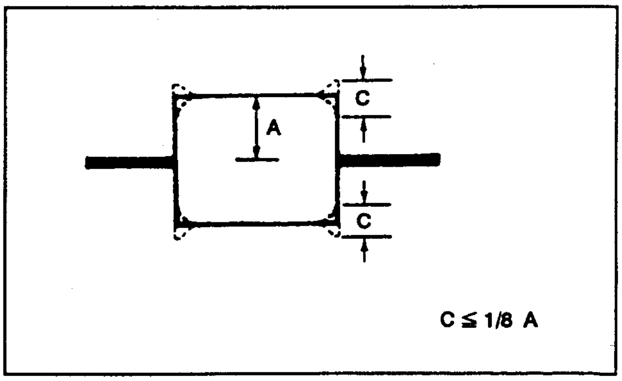


Fig. 4-14.

4-8-2. Rising Check (See Fig. 4-15.)

1) Play back the alignment tape for tracking adjustment.
2) Cancel the track shift mode.
3) Eject the tape, then load it again.
4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See Fig. 4-15).
5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
6) Repeat steps 3) to 5) once more.

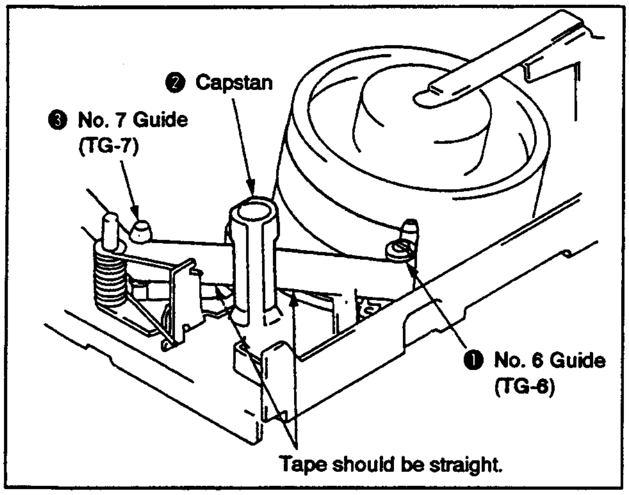

❷ Capstan
❸ No. 7 Guide (TG-7)
❶ No. 6 Guide (TG-6)
Tape should be straight.

Fig. 4-15.

4-8-3. Tape Path Check (See Fig. 4-16.)

1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

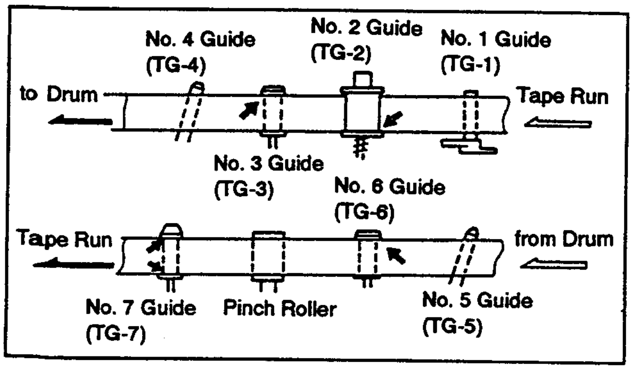

No. 4 Guide (TG-4)
No. 2 Guide (TG-2)
No. 1 Guide (TG-1)
to Drum
Tape Run
No. 3 Guide (TG-3)
No. 6 Guide (TG-6)
Tape Run
from Drum
No. 7 Guide (TG-7)
Pinch Roller
No. 5 Guide (TG-5)

Fig. 4-16.